=> FILE HCAPLUS
FILE 'HCAPLUS' ENTERED AT 15:49:13 ON 10 MAY 2004
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2004 AMERICAN CHEMICAL SOCIETY (ACS)

Copyright of the articles to which records in this database refer is held by the publishers listed in the PUBLISHER (PB) field (available for records published or updated in Chemical Abstracts after December 26, 1996), unless otherwise indicated in the original publications. The CA Lexicon is the copyrighted intellectual property of the the American Chemical Society and is provided to assist you in searching databases on STN. Any dissemination, distribution, copying, or storing of this information, without the prior written consent of CAS, is strictly prohibited.

FILE COVERS 1907 - 10 May 2004 VOL 140 ISS 20
FILE LAST UPDATED: 9 May 2004 (20040509/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> D QUE L61
L1 (12) SEA FILE=REGISTRY ABB=ON MICA/CN OR CLAY/CN OR HYDROTALCITE?/CN
L2 (4) SEA FILE=REGISTRY ABB=ON METHANOL/CN OR ETHANOL/CN OR N-PROPANOL/CN OR I-PROPANOL/CN OR N-BUTANOL/CN OR I-BUTANOL/CN
L3 (1) SEA FILE=REGISTRY ABB=ON ISOBUTANOL/CN
L4 (5) SEA FILE=REGISTRY ABB=ON L2 OR L3
L5 (2) SEA FILE=REGISTRY ABB=ON ACETONE/CN OR METHYL ETHYL KETONE/CN
L6 (4) SEA FILE=REGISTRY ABB=ON POLYPROPYLENE/CN OR POLYETHYLENE/CN OR POLYBUTADIENE/CN OR POLYSTYRENE/CN OR POLYETHYLEN TEREPHTHALATE/CN
L7 (205) SEA FILE=REGISTRY ABB=ON POLYETHYLENE(L)TEREPHTHALATE
L8 (726) SEA FILE=REGISTRY ABB=ON ACRYLONITRILE(L)BUTADIENE(L)STYRENE
L9 (4) SEA FILE=REGISTRY ABB=ON POLYBUTYLENE(L)TEREPHTHALATE
L10 (1) SEA FILE=REGISTRY ABB=ON SBR/CN
L11 (1) SEA FILE=REGISTRY ABB=ON "BUTYL RUBBER"/CN
L12 (65929) SEA FILE=REGISTRY ABB=ON PUR/PCT
L13 (17138) SEA FILE=REGISTRY ABB=ON PC/PCT
L14 (32354) SEA FILE=REGISTRY ABB=ON POLF/PCT
L15 (318) SEA FILE=REGISTRY ABB=ON NYLON ?/CN
L16 (202451) SEA FILE=HCAPLUS ABB=ON L1 OR MICA OR CLAY? OR HYDROTALCITE?
L17 (4435) SEA FILE=HCAPLUS ABB=ON L16 AND (L4 OR METHANOL OR ETHANOL OR MEOH OR ETOH OR CH3OH OR C2H5OH OR (METHYL OR ETHYL OR ISOPROPYL OR N(W)BUTYL OR ISOBUTYL)(W)ALC?)
L18 (454) SEA FILE=HCAPLUS ABB=ON L16 AND (ISOBUTANOL OR N(W)BUTANOL OR BUOH OR IPROH OR N(W)PROH)
L19 (145) SEA FILE=HCAPLUS ABB=ON (L17 OR L18) AND NANO?
L20 (13) SEA FILE=HCAPLUS ABB=ON L19 AND (L6 OR L7 OR L8 OR L9 OR L10 OR L11 OR L12 OR L13 OR L14 OR L15)
L21 (592) SEA FILE=HCAPLUS ABB=ON L5 AND L16
L22 (55) SEA FILE=HCAPLUS ABB=ON L21 AND (L6 OR L7 OR L8 OR L9 OR L10 OR L11 OR L12 OR L13 OR L14 OR L15)
L23 (3) SEA FILE=HCAPLUS ABB=ON L22 AND NANO?
L24 (15) SEA FILE=HCAPLUS ABB=ON L20 OR L23

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

```
L25 (        66) SEA FILE=HCAPLUS ABB=ON  (L17 OR L18 OR L21) AND (MELT? OR
                 MOLTEN? OR LIQ?)(4A)(?POLYMER? OR RESIN? OR PLASTIC?)
L26 (         4) SEA FILE=HCAPLUS ABB=ON  L25 AND NANO?
L27 (        17) SEA FILE=HCAPLUS ABB=ON  L24 OR L26
L28 (         1) SEA FILE=HCAPLUS ABB=ON  L25 AND VAPORI?
L29          18  SEA FILE=HCAPLUS ABB=ON  L27 OR L28
L31       67257  SEA FILE=HCAPLUS ABB=ON  (CLAY# OR MICA OR HYDROTALCITE) AND
                 (WATER OR H2O OR AQ OR ALC OR ALCOHOL# OR AQUESOUS)
L32         984  SEA FILE=HCAPLUS ABB=ON  (CLAY# OR MICA OR HYDROTALCITE) AND
                 (KETONE#)
L33        1162  SEA FILE=HCAPLUS ABB=ON  (L31 OR L32) AND NANO?
L34       29408  SEA FILE=HCAPLUS ABB=ON  POLYETHYLENE(L)TEREPHTHALATE
L35       17762  SEA FILE=HCAPLUS ABB=ON  L8 OR L9
L36           4  SEA FILE=REGISTRY ABB=ON  POLYPROPYLENE/CN OR POLYETHYLENE/CN
                 OR POLYBUTADIENE/CN OR POLYSTYRENE/CN OR POLYETHYLEN TEREPHTHAL
                 ATE/CN
L37           1  SEA FILE=REGISTRY ABB=ON  SBR/CN
L38           1  SEA FILE=REGISTRY ABB=ON  "BUTYL RUBBER"/CN
L39       65936  SEA FILE=REGISTRY ABB=ON  PUR/PCT
L40       49716  SEA FILE=REGISTRY ABB=ON  L13 OR L14 OR L15
L41      320815  SEA FILE=HCAPLUS ABB=ON  L36 OR L37 OR L38
L42       38021  SEA FILE=HCAPLUS ABB=ON  L39
L43      461475  SEA FILE=HCAPLUS ABB=ON  L40
L44         156  SEA FILE=HCAPLUS ABB=ON  L33 AND (L34 OR L35 OR L41 OR L42 OR
                 L43)
L45           0  SEA FILE=HCAPLUS ABB=ON  L44 AND VAPORI?
L47          27  SEA FILE=HCAPLUS ABB=ON  L33 AND (MELT? OR MOLTEN? OR LIQ?)(4A)
                 (?POLYMER? OR RESIN? OR PLASTIC?)
L48        5773  SEA FILE=HCAPLUS ABB=ON  (CLAY# OR MICA OR HYDROTALCITE) AND
                 SOLVENT#
L49         132  SEA FILE=HCAPLUS ABB=ON  L48 AND (MELT? OR MOLTEN? OR LIQ?)(4A)
                 (?POLYMER? OR RESIN? OR PLASTIC?)
L50          11  SEA FILE=HCAPLUS ABB=ON  L49 AND NANO?
L53         100  SEA FILE=HCAPLUS ABB=ON  L48 AND EMULSI?(4A)(?POLYMER? OR
                 RESIN? OR PLASTIC?)
L54           1  SEA FILE=HCAPLUS ABB=ON  L53 AND NANO?
L55          25  SEA FILE=HCAPLUS ABB=ON  L33 AND EMULSI?(4A)(?POLYMER? OR
                 RESIN? OR PLASTIC?)
L56          74  SEA FILE=HCAPLUS ABB=ON  L29 OR L45 OR L47 OR L50 OR L54 OR
                 L55
L57          44  SEA FILE=HCAPLUS ABB=ON  L56 AND P/DT
L58          30  SEA FILE=HCAPLUS ABB=ON  L56 NOT L57
L59           2  SEA FILE=HCAPLUS ABB=ON  L58 NOT (1999-2004)/PY
L60          23  SEA FILE=HCAPLUS ABB=ON  L57 AND (1907-1998)/AY,PRY
L61          25  SEA FILE=HCAPLUS ABB=ON  L59 OR L60


=> FILE WPIX
FILE 'WPIX' ENTERED AT 15:49:32 ON 10 MAY 2004
COPYRIGHT (C) 2004 THOMSON DERWENT

FILE LAST UPDATED:          5 MAY 2004      <20040505/UP>
MOST RECENT DERWENT UPDATE:     200429        <200429/DW>
DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

>>> FOR A COPY OF THE DERWENT WORLD PATENTS INDEX STN USER GUIDE,
    PLEASE VISIT:
 http://www.stn-international.de/training_center/patents/stn_guide.pdf <<<
```

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

>>> FOR DETAILS OF THE PATENTS COVERED IN CURRENT UPDATES, SEE
http://thomsonderwent.com/coverage/latestupdates/ <<<

>>> FOR INFORMATION ON ALL DERWENT WORLD PATENTS INDEX USER
GUIDES, PLEASE VISIT:
http://thomsonderwent.com/support/userguides/ <<<

>>> NEW! FAST-ALERTING ACCESS TO NEWLY-PUBLISHED PATENT
DOCUMENTATION NOW AVAILABLE IN DERWENT WORLD PATENTS INDEX
FIRST VIEW - FILE WPIFV. FREE CONNECT HOUR UNTIL 1 MAY 2004.
FOR FURTHER DETAILS: http://www.thomsonderwent.com/dwpifv <<<

>>> NEW! IMPROVE YOUR LITIGATION CHECKING AND INFRINGEMENT
MONITORING WITH LITALERT. FIRST ACCESS TO RECORDS OF IP
LAWSUITS FILED IN THE 94 US DISTRICT COURTS SINCE 1973.
FOR FURTHER DETAILS:
http://www.thomsonscientific.com/litalert <<<

>>> THE DISPLAY LAYOUT HAS BEEN CHANGED TO ACCOMODATE THE
NEW FORMAT GERMAN PATENT APPLICATION AND PUBLICATION
NUMBERS. SEE ALSO:
http://www.stn-international.de/archive/stnews/news0104.pdf <<<

>>> SINCE THE FILE HAD NOT BEEN UPDATED BETWEEN APRIL 12-16
THERE WAS NO WEEKLY SDI RUN <<<

=> D QUE L77
L62 59703 SEA FILE=WPIX ABB=ON CLAY# OR MICA OR HYDROTALCITE#
L64 843 SEA FILE=WPIX ABB=ON L62 AND (PROH OR PROPANOL OR N(W)PROPANOL OR I(W)PROPANOL OR N(W)BUTANOL OR I(W)BUTANOL OR ISOBUTANOL OR ISOPROPANOL OR BUOH OR ACETONE OR MEK OR METHY(W)ETHYL(W)KETONE)
L65 886 SEA FILE=WPIX ABB=ON L62 AND (PROH OR PROPANOL OR N(W)PROPANOL OR I(W)PROPANOL OR N(W)BUTANOL OR I(W)BUTANOL OR ISOBUTANOL OR ISOPROPANOL OR BUOH OR ACETONE OR MEK OR METHYL(W)ETHYL(W)KETONE)
L66 143 SEA FILE=WPIX ABB=ON L62 AND (METHYL OR ETHYL OR PROPYL OR BUTYL)(W)ALC?
L67 39 SEA FILE=WPIX ABB=ON ((L64 OR L65 OR L66)) AND (POLYMER? OR COPOLYMER? OR RESIN? OR PLASTIC?)(3A)(MELT? OT MOLTEN? OR LIQ? OR EMULSI?)
L68 1 SEA FILE=WPIX ABB=ON L67 AND NANO?
L69 497 SEA FILE=WPIX ABB=ON ((L64 OR L65 OR L66)) AND (POLYMER? OR COPOLYMER? OR RESIN? OR PLASTIC?)
L70 11 SEA FILE=WPIX ABB=ON L69 AND NANO?
L72 30 SEA FILE=WPIX ABB=ON ((L64 OR L65 OR L66)) AND (NANOCOMPOSITE? OR COMPOSITE?)
L73 5 SEA FILE=WPIX ABB=ON L72 AND NANO?
L74 11 SEA FILE=WPIX ABB=ON L68 OR L70 OR L73
L75 1 SEA FILE=WPIX ABB=ON L74 AND (1950-1998)/AV,PRY
L76 0 SEA FILE=WPIX ABB=ON L74 AND (1950-1998)/AY
L77 1 SEA FILE=WPIX ABB=ON L75 OR L76

=> FILE COMPENDEX
FILE 'COMPENDEX' ENTERED AT 15:49:49 ON 10 MAY 2004
Compendex Compilation and Indexing (C) 2004
Elsevier Engineering Information Inc (EEI). All rights reserved.
Compendex (R) is a registered Trademark of Elsevier Engineering Information Inc.

FILE LAST UPDATED: 10 MAY 2004 <20040510/UP>
FILE COVERS 1970 TO DATE.

<<< SIMULTANEOUS LEFT AND RIGHT TRUNCATION AVAILABLE IN
THE BASIC INDEX >>>

=> D QUE L79
L62 59703 SEA FILE=WPIX ABB=ON CLAY# OR MICA OR HYDROTALCITE#
L64 843 SEA FILE=WPIX ABB=ON L62 AND (PROH OR PROPANOL OR N(W)PROPANOL OR I(W)PROPANOL OR N(W)BUTANOL OR I(W)BUTANOL OR ISOBUTANOL OR ISOPROPANOL OR BUOH OR ACETONE OR MEK OR METHY(W)ETHYL(W)KETONE)
L65 886 SEA FILE=WPIX ABB=ON L62 AND (PROH OR PROPANOL OR N(W)PROPANOL OR I(W)PROPANOL OR N(W)BUTANOL OR I(W)BUTANOL OR ISOBUTANOL OR ISOPROPANOL OR BUOH OR ACETONE OR MEK OR METHYL(W)ETHYL(W)KETONE)
L66 143 SEA FILE=WPIX ABB=ON L62 AND (METHYL OR ETHYL OR PROPYL OR BUTYL)(W)ALC?
L67 39 SEA FILE=WPIX ABB=ON ((L64 OR L65 OR L66)) AND (POLYMER? OR COPOLYMER? OR RESIN? OR PLASTIC?)(3A)(MELT? OT MOLTEN? OR LIQ? OR EMULSI?)
L68 1 SEA FILE=WPIX ABB=ON L67 AND NANO?
L69 497 SEA FILE=WPIX ABB=ON ((L64 OR L65 OR L66)) AND (POLYMER? OR COPOLYMER? OR RESIN? OR PLASTIC?)
L70 11 SEA FILE=WPIX ABB=ON L69 AND NANO?
L72 30 SEA FILE=WPIX ABB=ON ((L64 OR L65 OR L66)) AND (NANOCOMPOSITE? OR COMPOSITE?)
L73 5 SEA FILE=WPIX ABB=ON L72 AND NANO?
L78 11 SEA FILE=COMPENDEX ABB=ON L68 OR L70 OR L73
L79 1 SEA FILE=COMPENDEX ABB=ON L78 NOT (1999-2004)/PY

=> FILE RAPRA
FILE 'RAPRA' ENTERED AT 15:50:02 ON 10 MAY 2004
COPYRIGHT (C) 2004 RAPRA Technology Ltd.

FILE LAST UPDATED: 26 APR 2004 <20040426/UP>
FILE COVERS 1972 TO DATE

>>> Simultaneous left and right truncation is available in the basic index (/BI), and in the controlled term (/CT), geographical term (/GT), and non-polymer term (/NPT) fields. <<<

>>> New search field /AB is available <<<

>>> The RAPRA Classification Code is available as a PDF file
>>> and may be downloaded free-of-charge from:
>>> http://www.stn-international.de/stndatabases/details/rapra_classcodes.pdf

>>> New monthly SDI Alert availability --> see NEWS <<<

=> D QUE L81
L62 59703 SEA FILE=WPIX ABB=ON CLAY# OR MICA OR HYDROTALCITE#
L64 843 SEA FILE=WPIX ABB=ON L62 AND (PROH OR PROPANOL OR N(W)PROPANOL OR I(W)PROPANOL OR N(W)BUTANOL OR I(W)BUTANOL OR ISOBUTANOL OR ISOPROPANOL OR BUOH OR ACETONE OR MEK OR METHY(W)ETHYL(W)KETONE)
L65 886 SEA FILE=WPIX ABB=ON L62 AND (PROH OR PROPANOL OR N(W)PROPANOL

```
                OR I(W)PROPANOL OR N(W)BUTANOL OR I(W)BUTANOL OR ISOBUTANOL
                OR ISOPROPANOL OR BUOH OR ACETONE OR MEK OR METHYL(W)ETHYL(W)KE
                TONE)
L66          143 SEA FILE=WPIX ABB=ON  L62 AND (METHYL OR ETHYL OR PROPYL OR
                BUTYL)(W)ALC?
L67           39 SEA FILE=WPIX ABB=ON  ((L64 OR L65 OR L66)) AND (POLYMER? OR
                COPOLYMER? OR RESIN? OR PLASTIC?)(3A)(MELT? OT MOLTEN? OR LIQ?
                OR EMULSI?)
L68            1 SEA FILE=WPIX ABB=ON  L67 AND NANO?
L69          497 SEA FILE=WPIX ABB=ON  ((L64 OR L65 OR L66)) AND (POLYMER? OR
                COPOLYMER? OR RESIN? OR PLASTIC?)
L70           11 SEA FILE=WPIX ABB=ON  L69 AND NANO?
L72           30 SEA FILE=WPIX ABB=ON  ((L64 OR L65 OR L66)) AND (NANOCOMPOSITE?
                OR COMPOSITE?)
L73            5 SEA FILE=WPIX ABB=ON  L72 AND NANO?
L80           15 SEA FILE=RAPRA ABB=ON  L68 OR L70 OR L73
L81            0 SEA FILE=RAPRA ABB=ON  L80 NOT (1999-2004)/PY

=> FILE JICST
FILE 'JICST-EPLUS' ENTERED AT 15:50:29 ON 10 MAY 2004
COPYRIGHT (C) 2004 Japan Science and Technology Agency (JST)

FILE COVERS 1985 TO 26 APR 2004 (20040426/ED)

THE JICST-EPLUS FILE HAS BEEN RELOADED TO REFLECT THE 1999 CONTROLLED
TERM (/CT) THESAURUS RELOAD.

=> D QUE L82
L62       59703 SEA FILE=WPIX ABB=ON  CLAY# OR MICA OR HYDROTALCITE#
L64         843 SEA FILE=WPIX ABB=ON  L62 AND (PROH OR PROPANOL OR N(W)PROPANOL
                OR I(W)PROPANOL OR N(W)BUTANOL OR I(W)BUTANOL OR ISOBUTANOL
                OR ISOPROPANOL OR BUOH OR ACETONE OR MEK OR METHY(W)ETHYL(W)KET
                ONE)
L65         886 SEA FILE=WPIX ABB=ON  L62 AND (PROH OR PROPANOL OR N(W)PROPANOL
                OR I(W)PROPANOL OR N(W)BUTANOL OR I(W)BUTANOL OR ISOBUTANOL
                OR ISOPROPANOL OR BUOH OR ACETONE OR MEK OR METHYL(W)ETHYL(W)KE
                TONE)
L66         143 SEA FILE=WPIX ABB=ON  L62 AND (METHYL OR ETHYL OR PROPYL OR
                BUTYL)(W)ALC?
L67          39 SEA FILE=WPIX ABB=ON  ((L64 OR L65 OR L66)) AND (POLYMER? OR
                COPOLYMER? OR RESIN? OR PLASTIC?)(3A)(MELT? OT MOLTEN? OR LIQ?
                OR EMULSI?)
L68           1 SEA FILE=WPIX ABB=ON  L67 AND NANO?
L69         497 SEA FILE=WPIX ABB=ON  ((L64 OR L65 OR L66)) AND (POLYMER? OR
                COPOLYMER? OR RESIN? OR PLASTIC?)
L70          11 SEA FILE=WPIX ABB=ON  L69 AND NANO?
L72          30 SEA FILE=WPIX ABB=ON  ((L64 OR L65 OR L66)) AND (NANOCOMPOSITE?
                OR COMPOSITE?)
L73           5 SEA FILE=WPIX ABB=ON  L72 AND NANO?
L80          15 SEA FILE=RAPRA ABB=ON  L68 OR L70 OR L73
L82           0 SEA FILE=JICST-EPLUS ABB=ON  L80 NOT (1999-2004)/PY

=> FILE JAPIO
FILE 'JAPIO' ENTERED AT 15:50:41 ON 10 MAY 2004
COPYRIGHT (C) 2004 Japanese Patent Office (JPO)- JAPIO

FILE LAST UPDATED: 8 APR 2004       <20040408/UP>


KATHLEEN FULLER EIC 1700  REMSEN 4B28 571/272-2505
```

FILE COVERS APR 1973 TO DECEMBER 05, 2003

<<< GRAPHIC IMAGES AVAILABLE >>>

```
=> D QUE L81
L62        59703 SEA FILE=WPIX ABB=ON  CLAY# OR MICA OR HYDROTALCITE#
L64          843 SEA FILE=WPIX ABB=ON  L62 AND (PROH OR PROPANOL OR N(W)PROPANOL
                 OR I(W)PROPANOL OR N(W)BUTANOL OR I(W)BUTANOL OR ISOBUTANOL
                OR ISOPROPANOL OR BUOH OR ACETONE OR MEK OR METHY(W)ETHYL(W)KET
                ONE)
L65          886 SEA FILE=WPIX ABB=ON  L62 AND (PROH OR PROPANOL OR N(W)PROPANOL
                 OR I(W)PROPANOL OR N(W)BUTANOL OR I(W)BUTANOL OR ISOBUTANOL
                OR ISOPROPANOL OR BUOH OR ACETONE OR MEK OR METHYL(W)ETHYL(W)KE
                TONE)
L66          143 SEA FILE=WPIX ABB=ON  L62 AND (METHYL OR ETHYL OR PROPYL OR
                BUTYL)(W)ALC?
L67           39 SEA FILE=WPIX ABB=ON  ((L64 OR L65 OR L66)) AND (POLYMER? OR
                COPOLYMER? OR RESIN? OR PLASTIC?)(3A)(MELT? OT MOLTEN? OR LIQ?
                OR EMULSI?)
L68            1 SEA FILE=WPIX ABB=ON  L67 AND NANO?
L69          497 SEA FILE=WPIX ABB=ON  ((L64 OR L65 OR L66)) AND (POLYMER? OR
                COPOLYMER? OR RESIN? OR PLASTIC?)
L70           11 SEA FILE=WPIX ABB=ON  L69 AND NANO?
L72           30 SEA FILE=WPIX ABB=ON  ((L64 OR L65 OR L66)) AND (NANOCOMPOSITE?
                 OR COMPOSITE?)
L73            5 SEA FILE=WPIX ABB=ON  L72 AND NANO?
L80           15 SEA FILE=RAPRA ABB=ON  L68 OR L70 OR L73
L81            0 SEA FILE=RAPRA ABB=ON  L80 NOT (1999-2004)/PY


=> FILE CERAB
FILE 'CERAB' ENTERED AT 15:50:59 ON 10 MAY 2004
COPYRIGHT (C) 2004 Cambridge Scientific Abstracts (CSA)

FILE COVERS 1976 TO 23 MAY 1997 (970523/ED)

THIS FILE IS CURRENTLY NOT BEING UPDATED.

=> D QUE L85
L62        59703 SEA FILE=WPIX ABB=ON  CLAY# OR MICA OR HYDROTALCITE#
L64          843 SEA FILE=WPIX ABB=ON  L62 AND (PROH OR PROPANOL OR N(W)PROPANOL
                 OR I(W)PROPANOL OR N(W)BUTANOL OR I(W)BUTANOL OR ISOBUTANOL
                OR ISOPROPANOL OR BUOH OR ACETONE OR MEK OR METHY(W)ETHYL(W)KET
                ONE)
L65          886 SEA FILE=WPIX ABB=ON  L62 AND (PROH OR PROPANOL OR N(W)PROPANOL
                 OR I(W)PROPANOL OR N(W)BUTANOL OR I(W)BUTANOL OR ISOBUTANOL
                OR ISOPROPANOL OR BUOH OR ACETONE OR MEK OR METHYL(W)ETHYL(W)KE
                TONE)
L66          143 SEA FILE=WPIX ABB=ON  L62 AND (METHYL OR ETHYL OR PROPYL OR
                BUTYL)(W)ALC?
L67           39 SEA FILE=WPIX ABB=ON  ((L64 OR L65 OR L66)) AND (POLYMER? OR
                COPOLYMER? OR RESIN? OR PLASTIC?)(3A)(MELT? OT MOLTEN? OR LIQ?
                OR EMULSI?)
L68            1 SEA FILE=WPIX ABB=ON  L67 AND NANO?
L69          497 SEA FILE=WPIX ABB=ON  ((L64 OR L65 OR L66)) AND (POLYMER? OR
                COPOLYMER? OR RESIN? OR PLASTIC?)
L70           11 SEA FILE=WPIX ABB=ON  L69 AND NANO?
L72           30 SEA FILE=WPIX ABB=ON  ((L64 OR L65 OR L66)) AND (NANOCOMPOSITE?
                 OR COMPOSITE?)
```

```
L73             5 SEA FILE=WPIX ABB=ON  L72 AND NANO?
L85             0 SEA FILE=CERAB ABB=ON  L68 OR L70 OR L73


=> DUP REM L61 L77 L79
FILE 'HCAPLUS' ENTERED AT 15:51:23 ON 10 MAY 2004
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2004 AMERICAN CHEMICAL SOCIETY (ACS)

FILE 'WPIX' ENTERED AT 15:51:23 ON 10 MAY 2004
COPYRIGHT (C) 2004 THOMSON DERWENT

FILE 'COMPENDEX' ENTERED AT 15:51:23 ON 10 MAY 2004
Compendex Compilation and Indexing (C) 2004
Elsevier Engineering Information Inc (EEI). All rights reserved.
Compendex (R) is a registered Trademark of Elsevier Engineering Information Inc.
PROCESSING COMPLETED FOR L61
PROCESSING COMPLETED FOR L77
PROCESSING COMPLETED FOR L79
L86            26 DUP REM L61 L77 L79 (1 DUPLICATE REMOVED)

=> D L85 ALL 1-26
L85 HAS NO ANSWERS
L62         59703 SEA FILE=WPIX ABB=ON  CLAY# OR MICA OR HYDROTALCITE#
L64           843 SEA FILE=WPIX ABB=ON  L62 AND (PROH OR PROPANOL OR N(W)PROPANOL
                  OR I(W)PROPANOL OR N(W)BUTANOL OR I(W)BUTANOL OR ISOBUTANOL
                  OR ISOPROPANOL OR BUOH OR ACETONE OR MEK OR METHY(W)ETHYL(W)KET
                  ONE)
L65           886 SEA FILE=WPIX ABB=ON  L62 AND (PROH OR PROPANOL OR N(W)PROPANOL
                  OR I(W)PROPANOL OR N(W)BUTANOL OR I(W)BUTANOL OR ISOBUTANOL
                  OR ISOPROPANOL OR BUOH OR ACETONE OR MEK OR METHYL(W)ETHYL(W)KE
                  TONE)
L66           143 SEA FILE=WPIX ABB=ON  L62 AND (METHYL OR ETHYL OR PROPYL OR
                  BUTYL)(W)ALC?
L67            39 SEA FILE=WPIX ABB=ON  ((L64 OR L65 OR L66)) AND (POLYMER? OR
                  COPOLYMER? OR RESIN? OR PLASTIC?)(3A)(MELT? OT MOLTEN? OR LIQ?
                  OR EMULSI?)
L68             1 SEA FILE=WPIX ABB=ON  L67 AND NANO?
L69           497 SEA FILE=WPIX ABB=ON  ((L64 OR L65 OR L66)) AND (POLYMER? OR
                  COPOLYMER? OR RESIN? OR PLASTIC?)
L70            11 SEA FILE=WPIX ABB=ON  L69 AND NANO?
L72            30 SEA FILE=WPIX ABB=ON  ((L64 OR L65 OR L66)) AND (NANOCOMPOSITE?
                  OR COMPOSITE?)
L73             5 SEA FILE=WPIX ABB=ON  L72 AND NANO?
L85             0 SEA FILE=CERAB ABB=ON  L68 OR L70 OR L73


=> D L86 ALL 1-26

L86  ANSWER 1 OF 26  HCAPLUS  COPYRIGHT 2004 ACS on STN
AN   2004:119791  HCAPLUS
DN   140:147799
ED   Entered STN:  13 Feb 2004
TI   Electrically conductive and electromagnetic radiation absorptive coating
     compositions
IN   Legrande, Wayne B.; Boyd, Robert C.
PA   USA
SO   U.S. Pat. Appl. Publ., 9 pp., Cont.-in-part of Appl. No. PCT/US02/07039.
```

CODEN: USXXCO
DT **Patent**
LA English
IC ICM B32B001-08
NCL 428036910; 428328000; 428323000
CC 42-10 (Coatings, Inks, and Related Products)
Section cross-reference(s): 76, 77
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
PI	US 2004028859	A1	20040212	US 2003-358375	20030205	<--
	US 6576336	B1	20030610	US 1998-151445	19980911	<--
	WO 2003078531	A1	20030925	WO 2002-US7039	20020308	<--

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRAI US 1998-151445 A2 19980911 <--
WO 2002-US7039 A2 20020308

AB The coating composition having good elec. conductive and electromagnetic radiation absorptive properties comprises (1) a **water emulsion polymer** binder, (2) a combination of carbon particles and metal-coated lightwt. particles dispersed in the binder, and (3) **water**. Thus, a coating composition comprised Rhoplex WL 96 (acrylic polymer) 37.5, Chemisat LCH 7302X (saturated butadiene-acrylonitrile copolymer latex) 5.5, **water** 12.5, silver-coated microspheres 35.0, graphite 2.5 parts and other additives was coated on a plastic film, showing conductivity 1.5 Ω/.box. and impact strength ≥160 in/lb.

ST elec conductive electromagnetic radiation absorptive coating compn; acrylic polymer diene polymer binder coating; carbon metal coated particle coating cond

IT Acrylic polymers, uses
RL: MSC (Miscellaneous); POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(binders; elec. conductive and electromagnetic radiation absorptive coating compns.)

IT **Nanotubes**
(carbon; elec. conductive and electromagnetic radiation absorptive coating compns.)

IT Microspheres
(ceramic, metal-coated; elec. conductive and electromagnetic radiation absorptive coating compns.)

IT Coating materials
(elec. conductive; elec. conductive and electromagnetic radiation absorptive coating compns.)

IT Reinforced plastics
RL: MSC (Miscellaneous)
(fiber-reinforced, substrates; elec. conductive and electromagnetic radiation absorptive coating compns.)

IT Ceramics
(fibers, metal-coated; elec. conductive and electromagnetic radiation absorptive coating compns.)

IT Glass, uses

Mica-group minerals, uses
RL: MOA (Modifier or additive use); USES (Uses)
(flakes, metal-coated; elec. conductive and electromagnetic radiation absorptive coating compns.)

IT Nitrile rubber, uses
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(hydrogenated, Chemisat LCH 7302X, binders; elec. conductive and electromagnetic radiation absorptive coating compns.)

IT Microspheres
(metal-coated; elec. conductive and electromagnetic radiation absorptive coating compns.)

IT Glass fibers, uses
Glass spheres
RL: MOA (Modifier or additive use); USES (Uses)
(metal-coated; elec. conductive and electromagnetic radiation absorptive coating compns.)

IT Ceramics
(microspheres, metal-coated; elec. conductive and electromagnetic radiation absorptive coating compns.)

IT Clothing
Paper
(substrates; elec. conductive and electromagnetic radiation absorptive coating compns.)

IT Metals, miscellaneous
Plastics, miscellaneous
Polyamides, miscellaneous
Polycarbonates, miscellaneous
Rubber, miscellaneous
RL: MSC (Miscellaneous)
(substrates; elec. conductive and electromagnetic radiation absorptive coating compns.)

IT Aircraft
Buildings
Electric apparatus
Pipes and Tubes
Ships
Tanks (containers)
Vehicles
(substrates; elec. conductive and electromagnetic radiation absorptive coating compns. for)

IT 116788-79-5, Rhoplex WL 96 223784-68-7, Maincote HG 54D 652989-41-8, Chemisat LCH 7505X
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(binders; elec. conductive and electromagnetic radiation absorptive coating compns.)

IT 7782-42-5, Graphite, uses
RL: MOA (Modifier or additive use); USES (Uses)
(elec. conductive and electromagnetic radiation absorptive coating compns.)

IT 7429-90-5, Aluminum, uses 7439-89-6, Iron, uses 7440-02-0, Nickel, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-22-4, Silver, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses
RL: MOA (Modifier or additive use); USES (Uses)
(microspheres coated with; elec. conductive and electromagnetic radiation absorptive coating compns.)

IT 9003-18-3
RL: POF (Polymer in formulation); TEM (Technical or engineered material

use); USES (Uses)
(nitrile rubber, hydrogenated, Chemisat LCH 7302X, binders; elec. conductive and electromagnetic radiation absorptive coating compns.)
IT 7440-44-0, Carbon, uses
RL: MOA (Modifier or additive use); USES (Uses)
(particles; elec. conductive and electromagnetic radiation absorptive coating compns.)
IT 10043-11-5, Boron nitride, uses
RL: MOA (Modifier or additive use); USES (Uses)
(powders, metal-coated; elec. conductive and electromagnetic radiation absorptive coating compns.)

L86 ANSWER 2 OF 26 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2000:401927 HCAPLUS
DN 133:44402
ED Entered STN: 16 Jun 2000
TI Polymer/intercalated **clay nanocomposite** comprising a functionalized polymer or oligomer for products with improved gas barrier and preparation
IN Barbee, Robert Boyd; Matayabas, James Christopher, Jr.; Gilmer, John Walker
PA Eastman Chemical Company, USA
SO PCT Int. Appl., 51 pp.
CODEN: PIXXD2
DT **Patent**
LA English
IC ICM C08L101-00
ICS C08K003-34; C08K007-00; C08K009-04
CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): 38
FAN.CNT 5

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000034393	A1	20000615	WO 1999-US28938	19991207 <--
	W: AU, BR, CA, CN, JP, MX				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	EP 1141136	A1	20011010	EP 1999-963032	19991207 <--
	EP 1141136	B1	20030820		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	JP 2002531675	T2	20020924	JP 2000-586834	19991207 <--
	AU 758915	B2	20030403	AU 2000-19355	19991207 <--
PRAI	US 1998-111323P	P	19981207 <--		
	WO 1999-US28938	W	19991207		

AB A polymer-**clay nanocomposite** comprises (i) a **melt**-processible matrix **polymer** (polyesters, polyamides, etc.), and (ii) a concentrate of layered intercalated **clay** materials with a matrix polymer-compatible functionalized oligomer or polymer. The **nanocomposite** may be a part of a multilayer material with the **nanocomposite** sandwiched between two outer polymer layers. Thus, an example **nanocomposite** was produced by mixing the ammonium form of dimethylpropanediamine-modified polycaprolactone with sodium montmorillonite suspension to give an intercalated **clay** product and further mixing/molding with poly(ethylene terephthalate).
ST polyester **nanocomposite** expanded cation exchanged **clay** ; plastic container high gas barrier polyester; **clay** cation exchanged expanded polyester; ammonium functional polycaprolactone mixt **clay**

IT Polyesters, uses
Polyesters, uses
Polyimides, uses
Polyimides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyamide-; polymer/layered intercalated **clays** containing functionalized polymer as **nanocomposites** with improved barrier properties)

IT Polyamides, uses
Polyamides, uses
Polyethers, uses
Polyethers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyester-; polymer/layered intercalated **clays** containing functionalized polymer as **nanocomposites** with improved barrier properties)

IT Polyesters, uses
Polyesters, uses
Polyimides, uses
Polyimides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyether-; polymer/layered intercalated **clays** containing functionalized polymer as **nanocomposites** with improved barrier properties)

IT Polyamides, uses
Polyamides, uses
Polyethers, uses
Polyethers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyimide-; polymer/layered intercalated **clays** containing functionalized polymer as **nanocomposites** with improved barrier properties)

IT **Nanocomposites**
(polymer/layered intercalated **clays** containing functionalized polymer as)

IT Bentonite, uses
Clays, uses
Mica-group minerals, uses
RL: MOA (Modifier or additive use); USES (Uses)
(polymer/layered intercalated **clays** containing functionalized polymer as **nanocomposites** with improved barrier properties)

IT Epoxy resins, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/layered intercalated **clays** containing functionalized polymer as **nanocomposites** with improved barrier properties)

IT Phenoxy resins
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/layered intercalated **clays** containing functionalized polymer as **nanocomposites** with improved barrier properties)

IT Polyamides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/layered intercalated **clays** containing functionalized polymer as **nanocomposites** with improved barrier properties)

IT Polyesters, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/layered intercalated **clays** containing functionalized polymer as **nanocomposites** with improved barrier properties)

IT Polyimides, uses
RL: TEM (Technical or engineered material use); USES (Uses)

(polymer/layered intercalated **clays** containing functionalized polymer as **nanocomposites** with improved barrier properties)

IT Polyolefins
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/layered intercalated **clays** containing functionalized polymer as **nanocomposites** with improved barrier properties)

IT Polyoxyphenylenes
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/layered intercalated **clays** containing functionalized polymer as **nanocomposites** with improved barrier properties)

IT Polyureas
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/layered intercalated **clays** containing functionalized polymer as **nanocomposites** with improved barrier properties)

IT Polyurethanes, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/layered intercalated **clays** containing functionalized polymer as **nanocomposites** with improved barrier properties)

IT Quaternary ammonium compounds, uses
RL: MOA (Modifier or additive use); USES (Uses)
(polymers; polymer/layered intercalated **clays** containing functionalized polymer as **nanocomposites** with improved barrier properties)

IT Permeability
(to oxygen; polymer/layered intercalated **clays** containing functionalized polymer as **nanocomposites** with improved barrier properties)

IT 25640-14-6, PET 9921
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(PET 9921; polymer/layered intercalated **clays** containing functionalized polymer as **nanocomposites** with improved barrier properties)

IT 108-01-0D, Dimethylethanolamine, quaternary derivative with polyester 109-55-7D, quaternary derivative with polyester 1318-00-9, Vermiculite 1318-93-0D, Montmorillonite ((Al1.33-1.67Mg0.33-0.67)(Ca0-1Na0-1)0.33Si4(OH)2O10.xH2O), sodium-exchanged, uses 1319-41-1, Saponite 7328-91-8D, 2,2-Dimethyl-1,3-propanediamine, quaternary derivative with polycaprolactone 9003-53-6D, Polystyrene, dimethylammonium chloride derivative 12172-85-9, Beidellite 12173-47-6, Hectorite ((Mg2.67Li0.33)Si4Na0.33F2O10) 12174-06-0, Nontronite 12285-88-0, Magadiite 12285-95-9, Kenyaite 12286-87-2, Volkonskoite 24937-05-1D, Adipic acid-ethylene glycol copolymer, sru, dimethylpropanediammonium chloride derivative 24937-78-8D, Ethylene-vinyl acetate copolymer, amine-functionalized, hydrolyzed 24938-37-2D, Adipic acid-ethylene glycol copolymer, dimethylpropanediammonium chloride derivative 24980-41-4D, Polycaprolactone, dimethylpropanediammonium chloride derivative 25248-42-4D, Polycaprolactone, dimethylpropanediammonium chloride derivative 25640-14-6D, PETG 6763, dimethylpropanediammonium chloride derivative 54590-72-6D, **AQ** 55, dimethylpropanediammonium chloride derivative 274692-22-7D, Ethylene-6-(N,N-dimethylamino)hexyl vinyl ether-vinyl acetate copolymer, hydrolyzed 274692-23-8, Adipic acid-6-(trimethylammonium)hexanoic acid-1,3-xylylenediamine copolymer
RL: MOA (Modifier or additive use); USES (Uses)
(polymer/layered intercalated **clays** containing functionalized polymer as **nanocomposites** with improved barrier properties)

IT 9003-53-6, Polystyrene 25038-54-4, Nylon 6, uses 25038-59-9, Poly(ethylene terephthalate), uses 25067-34-9, Ethylene-vinyl **alcohol** copolymer 25718-70-1, Adipic acid-m-xylylenediamine

copolymer 28628-75-3, Adipic acid-isophthalic acid-1,3-xylylenediamine copolymer 32131-17-2, Nylon 66, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/layered intercalated **clays** containing functionalized polymer as **nanocomposites** with improved barrier properties)

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Allied Signal Inc; WO 9304117 A 1993 HCAPLUS
(2) Graham, B; WO 9744384 A 1997 HCAPLUS
(3) Hekal, I; US 4536425 A 1985 HCAPLUS
(4) Toyota Chuo Kenkyusho; JP 10-168305 A Database WPI 1998 HCAPLUS

L86 ANSWER 3 OF 26 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2000:401914 HCAPLUS
DN 133:44395
ED Entered STN: 16 Jun 2000
TI Polymer/**clay** intercalated with two or more organic cations as **nanocomposite** with improved gas barrier and its preparation
IN Gilmer, John Walker; Matayabas, James Christopher, Jr.; Barbee, Robert Boyd; Lan, Tie
PA Eastman Chemical Company, USA
SO PCT Int. Appl., 43 pp.
CODEN: PIXXD2
DT **Patent**
LA English
IC ICM C08K009-04
ICS C01B033-44; C08K003-34
CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): 38

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000034380	A1	20000615	WO 1999-US28336	19991130 <--
	W: AU, BR, CA, CN, IN, JP, MX				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	US 6387996	B1	20020514	US 1999-452424	19991201 <--
	WO 2000034180	A1	20000615	WO 1999-US28698	19991207 <--
	W: AU, BR, CA, CN, JP, MX				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	EP 1137594	A1	20011004	EP 1999-964087	19991207 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	JP 2002531640	T2	20020924	JP 2000-586634	19991207 <--
	AU 758250	B2	20030320	AU 2000-20400	19991207 <--
PRAI	US 1998-111199P	P	19981207 <--		
	WO 1999-US28336	W	19991130		
	WO 1999-US28698	W	19991207		

AB A polymer-**clay nanocomposite** comprises (i) a **melt**-processible matrix **polymer** (polyesters, polyamides, etc.), and (ii) a **clay**-organic cation intercalate comprising a layered **clay** material intercalated with ≥2 organic cations, where ≥1 organic cation comprises ligands each having ≤7 carbons and ≥1 organic cation comprises ≥1 ligand having ≥12 carbons. The **nanocomposite** may be a part of a multilayer material with the **nanocomposite** sandwiched between two outer polymer layers. Thus, an example **nanocomposite** was produced by mixing octadecyl tri-Me ammonium chloride/tetramethyl ammonium

chloride with sodium montmorillonite to give an intercalated **clay** product and further mixing/molding with poly(ethylene terephthalate).

ST polyester **nanocomposite** expanded cation exchanged **clay** ; plastic container high gas barrier polyester; **clay** cation exchanged expanded polyester

IT Polyesters, uses
Polyimides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyamide-; polymer/**clay** intercalated with two or more organic cations as **nanocomposites** with improved barrier properties)

IT Polyamides, uses
Polyethers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyester-; polymer/**clay** intercalated with two or more organic cations as **nanocomposites** with improved barrier properties)

IT Polyesters, uses
Polyimides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyether-; polymer/**clay** intercalated with two or more organic cations as **nanocomposites** with improved barrier properties)

IT Polyamides, uses
Polyethers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyimide-; polymer/**clay** intercalated with two or more organic cations as **nanocomposites** with improved barrier properties)

IT **Nanocomposites**
(polymer/**clay** intercalated with two or more organic cations as)

IT Bottles
(polymer/**clay** intercalated with two or more organic cations as **nanocomposites** with improved barrier properties)

IT Bentonite, uses
Clays, uses
Mica-group minerals, uses
Quaternary ammonium compounds, uses
RL: MOA (Modifier or additive use); USES (Uses)
(polymer/**clay** intercalated with two or more organic cations as **nanocomposites** with improved barrier properties)

IT Epoxy resins, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/**clay** intercalated with two or more organic cations as **nanocomposites** with improved barrier properties)

IT Phenoxy resins
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/**clay** intercalated with two or more organic cations as **nanocomposites** with improved barrier properties)

IT Polyamides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/**clay** intercalated with two or more organic cations as **nanocomposites** with improved barrier properties)

IT Polyesters, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/**clay** intercalated with two or more organic cations as **nanocomposites** with improved barrier properties)

IT Polyimides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/**clay** intercalated with two or more organic cations as **nanocomposites** with improved barrier properties)

IT Polyolefins
RL: TEM (Technical or engineered material use); USES (Uses)

(polymer/**clay** intercalated with two or more organic cations as **nanocomposites** with improved barrier properties)

IT Polyoxyphenylenes
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/**clay** intercalated with two or more organic cations as **nanocomposites** with improved barrier properties)

IT Polyureas
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/**clay** intercalated with two or more organic cations as **nanocomposites** with improved barrier properties)

IT Polyurethanes, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/**clay** intercalated with two or more organic cations as **nanocomposites** with improved barrier properties)

IT Permeability
(to oxygen; polymer/**clay** intercalated with two or more organic cations as **nanocomposites** with improved barrier properties)

IT 28724-32-5, Methyl octadecyl bis(polyoxyethylene) ammonium chloride
RL: MOA (Modifier or additive use); USES (Uses)
(Ethoquad 18/25; polymer/**clay** intercalated with two or more organic cations as **nanocomposites** with improved barrier properties)

IT 25640-14-6, PET 9921
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(PET 9921; polymer/**clay** intercalated with two or more organic cations as **nanocomposites** with improved barrier properties)

IT 83713-01-3
RL: MOA (Modifier or additive use); USES (Uses)
(XTJ 505; polymer/**clay** intercalated with two or more organic cations as **nanocomposites** with improved barrier properties)

IT 51-92-3, Tetramethyl ammonium 1318-00-9, Vermiculite 1318-93-0D, Montmorillonite ((Al1.33-1.67Mg0.33-0.67)(Ca0-1Na0-1)0.33Si4(OH)2O10.xH2O), sodium-exchanged, uses 1319-41-1, Saponite 3010-24-0, Tomah Q 18-2 12172-85-9, Beidellite 12173-47-6, Hectorite ((Mg2.67Li0.33)Si4Na0.33F2O10) 12174-06-0, Nontronite 12285-88-0, Magadiite 12285-95-9, Kenyaite 12286-87-2, Volkonskoite 15461-40-2, Octadecyl trimethyl ammonium 15853-37-9, Tetrabutyl phosphonium 19696-41-4, Dodecyl ammonium 28883-73-0 37612-69-4 45308-00-7, Tetraoctyl phosphonium 59514-47-5 60687-87-8 274911-33-0
RL: MOA (Modifier or additive use); USES (Uses)
(polymer/**clay** intercalated with two or more organic cations as **nanocomposites** with improved barrier properties)

IT 9003-53-6, Polystyrene 25038-59-9, Poly(ethylene terephthalate), uses 25067-34-9, Ethylene-vinyl **alcohol** copolymer 25718-70-1, Adipic acid-m-xylylenediamine copolymer 25805-74-7, Adipic acid-m-xylylenediamine copolymer, sru
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/**clay** intercalated with two or more organic cations as **nanocomposites** with improved barrier properties)

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Allied Signal Inc; WO 9304117 A 1993 HCAPLUS
(2) Rheox Int; EP 0542266 A 1993 HCAPLUS
(3) Thill, B; US 5780376 A 1998 HCAPLUS
(4) Tohru, T; US 5530052 A 1996 HCAPLUS

L86 ANSWER 4 OF 26 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2000:401913 HCAPLUS

DN 133:44394
ED Entered STN: 16 Jun 2000
TI Colorant composition, a polymer **nanocomposite** comprising the colorant composition and articles produced therefrom
IN Barbee, Robert Boyd; Weaver, Max Allen; Matayabas, James Christopher, Jr.
PA Eastman Chemical Company, USA
SO PCT Int. Appl., 51 pp.
CODEN: PIXXD2
DT **Patent**
LA English
IC ICM C08K009-04
ICS C01B033-00
CC 37-6 (Plastics Manufacture and Processing)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
PI	WO 2000034379	A1	20000615	WO 1999-US28319	19991130	<--
	W: AU, BR, CA, CN, IN, JP, MX					
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE					
	EP 1147147	A1	20011024	EP 1999-965942	19991130	<--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI					
	BR 9916039	A	20011204	BR 1999-16039	19991130	<--
	AU 758538	B2	20030327	AU 2000-21606	19991130	<--
	US 6486254	B1	20021126	US 1999-452317	19991201	<--
PRAI	US 1998-111321P	P	19981207	<--		
	WO 1999-US28319	W	19991130			

AB This invention relates to a colorant composition comprising a layered **clay** material intercalated with at least one cationic colorant, optical brightener or a mixture thereof. This invention also relates to a polymer-**clay nanocomposite** comprising: (i) a **melt**-processible matrix **polymer**; and (ii) a layered **clay** material intercalated with at least one cationic colorant, optical brightener or a mixture thereof, wherein the **clay**-cation colorant/optical brightener intercalate is incorporated into the matrix polymer. The invention further relates to articles produced from the polymer **nanocomposite**.
ST polymer **nanocomposite** colorant optical brightener
IT Bottles
Coloring materials
Fluorescent brighteners
Nanocomposites
(colorant composition, a polymer **nanocomposite** comprising the colorant composition and articles produced therefrom)
IT Bentonite, uses
Clays, uses
Mica-group minerals, uses
RL: MOA (Modifier or additive use); USES (Uses)
(colorant composition, a polymer **nanocomposite** comprising the colorant composition and articles produced therefrom)
IT Epoxy resins, properties
Phenoxy resins
Polyamides, properties
Polyesters, properties
Polyimides, properties
Polyolefins
Polyoxyphenylenes
Polyureas

Polyurethanes, properties
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(colorant composition, a polymer **nanocomposite** comprising the colorant composition and articles produced therefrom)

IT Polyesters, properties
Polyesters, properties
Polyimides, properties
Polyimides, properties
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyamide-; colorant composition, a polymer **nanocomposite** comprising the colorant composition and articles produced therefrom)

IT Polyamides, properties
Polyamides, properties
Polyethers, properties
Polyethers, properties
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyester-; colorant composition, a polymer **nanocomposite** comprising the colorant composition and articles produced therefrom)

IT Polyesters, properties
Polyesters, properties
Polyimides, properties
Polyimides, properties
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyether-; colorant composition, a polymer **nanocomposite** comprising the colorant composition and articles produced therefrom)

IT Polyamides, properties
Polyamides, properties
Polyethers, properties
Polyethers, properties
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(polyimide-; colorant composition, a polymer **nanocomposite** comprising the colorant composition and articles produced therefrom)

IT 3248-30-4P
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses)
(cationic colorant; colorant composition, a polymer **nanocomposite** comprising the colorant composition and articles produced therefrom)

IT 274924-43-5P
RL: IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses)
(colorant composition, a polymer **nanocomposite** comprising the colorant composition and articles produced therefrom)

IT 75-57-0, Tetramethylammonium chloride 112-03-8, Octadecyltrimethylammonium chloride 929-73-7, Dodecylammonium chloride 989-38-8, Rhodamine 6G 1318-00-9, Vermiculite 1318-93-0, Montmorillonite, uses 1319-41-1, Saponite 12172-85-9, Beidellite 12173-47-6, Hectorite 12174-06-0, Nontronite 12285-88-0, Magadiite 12285-95-9, Kenyaite 12286-87-2, Volkonskoite 26062-79-3, Poly(diallyldimethylammonium chloride) 55840-82-9, C.I. Basic Blue 3 71902-12-0, Hostalux NR 93966-52-0 130501-01-8, Claytone APA
RL: MOA (Modifier or additive use); USES (Uses)
(colorant composition, a polymer **nanocomposite** comprising the colorant composition and articles produced therefrom)

IT 9003-53-6, Polystyrene 25038-59-9, Poly(ethylene terephthalate), properties 25067-34-9, Ethylene vinyl **alcohol** copolymer 25640-14-6, PET 9921
RL: POF (Polymer in formulation); PRP (Properties); USES (Uses)
(colorant composition, a polymer **nanocomposite** comprising the colorant composition and articles produced therefrom)

IT 82-46-2, 1,5-Dichloroanthraquinone 2038-03-1, 4-(2-Aminoethyl)morpholine
RL: RCT (Reactant); RACT (Reactant or reagent)
(colorant composition, a polymer **nanocomposite** comprising the colorant composition and articles produced therefrom)
RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Fahn, R; Clay Minerals V18(4), P447 HCAPLUS
(2) Sony Corp; JP 10-133013 A Database WPI 1998 HCAPLUS
(3) Sony Corp; JP 10-077427 A Database WPI 1998 HCAPLUS

L86 ANSWER 5 OF 26 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2000:401912 HCAPLUS
DN 133:44393
ED Entered STN: 16 Jun 2000
TI Polymer/**clay** intercalated with two or more organic cations as **nanocomposite** and its preparation
IN Gilmer, John Walker; Matayabas, James Christopher, Jr.; Barbee, Robert Boyd
PA Eastman Chemical Company, USA
SO PCT Int. Appl., 40 pp.
CODEN: PIXXD2
DT **Patent**
LA English
IC ICM C08K009-04
ICS C08L067-00
CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): 38
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000034378	A1	20000615	WO 1999-US28271	19991130 <--
	W: AU, BR, CA, CN, IN, JP, MX				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	EP 1155079	A1	20011121	EP 1999-964008	19991130 <--
	EP 1155079	B1	20030820		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	JP 2002531667	T2	20020924	JP 2000-586819	19991130 <--
	AU 758470	B2	20030320	AU 2000-20334	19991130 <--
PRAI	US 1998-111303P	P	19981207 <--		
	WO 1999-US28271	W	19991130		

AB A polymer-**clay nanocomposite** comprises (i) a **melt**-processible matrix **polymer** (polyesters, polyamides, etc.), and (ii) a **clay**-organic cation intercalate comprising a layered **clay** material intercalated with ≥2 organic cations, where ≥1 organic cation comprises ligands each having ≤7 carbons and ≥1 organic cation comprises ≥1 ligand having ≥12 carbons. Thus, an example **nanocomposite** was produced by mixing octadecyl tri-Me ammonium chloride/tetramethyl ammonium chloride with sodium montmorillonite to give an intercalated **clay** product and further mixing/molding with poly(ethylene terephthalate).
ST polyester **nanocomposite** expanded cation exchanged **clay** ; plastic container high gas barrier polyester; **clay** cation exchanged expanded polyester
IT Polyesters, uses
Polyimides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyamide-; polymer/**clay** intercalated with two or more organic

cations as **nanocomposites** with improved barrier properties)

IT Polyamides, uses
Polyethers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyester-; polymer/**clay** intercalated with two or more organic cations as **nanocomposites** with improved barrier properties)

IT Polyesters, uses
Polyimides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyether-; polymer/**clay** intercalated with two or more organic cations as **nanocomposites** with improved barrier properties)

IT Polyamides, uses
Polyethers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyimide-; polymer/**clay** intercalated with two or more organic cations as **nanocomposites** with improved barrier properties)

IT **Nanocomposites**
(polymer/**clay** intercalated with two or more organic cations as)

IT Bottles
(polymer/**clay** intercalated with two or more organic cations as **nanocomposites** with improved barrier properties)

IT Bentonite, uses
Clays, uses
Mica-group minerals, uses
Quaternary ammonium compounds, uses
RL: MOA (Modifier or additive use); USES (Uses)
(polymer/**clay** intercalated with two or more organic cations as **nanocomposites** with improved barrier properties)

IT Epoxy resins, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/**clay** intercalated with two or more organic cations as **nanocomposites** with improved barrier properties)

IT Phenoxy resins
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/**clay** intercalated with two or more organic cations as **nanocomposites** with improved barrier properties)

IT Polyamides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/**clay** intercalated with two or more organic cations as **nanocomposites** with improved barrier properties)

IT Polyesters, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/**clay** intercalated with two or more organic cations as **nanocomposites** with improved barrier properties)

IT Polyimides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/**clay** intercalated with two or more organic cations as **nanocomposites** with improved barrier properties)

IT Polyolefins
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/**clay** intercalated with two or more organic cations as **nanocomposites** with improved barrier properties)

IT Polyoxyphenylenes
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/**clay** intercalated with two or more organic cations as **nanocomposites** with improved barrier properties)

IT Polyureas
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/**clay** intercalated with two or more organic cations as

nanocomposites with improved barrier properties)

IT Polyurethanes, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/**clay** intercalated with two or more organic cations as **nanocomposites** with improved barrier properties)

IT 51-92-3, Tetramethyl ammonium 75-57-0, Tetramethyl ammonium chloride 112-03-8, Octadecyl trimethyl ammonium chloride 1318-00-9, Vermiculite 1318-93-0D, Montmorillonite ((Al1.33-1.67Mg0.33-0.67)(Ca0-1Na0-1)0.33Si4(OH)2O10.xH2O), sodium-exchanged, uses 1319-41-1, Saponite ((Mg0.5-1Fe0-0.5)3(Si3.67Al0.33)(Na0-0.33Ca0-0.17)(OH)2O10.4H2O) 10549-76-5, Tetrabutyl ammonium 12172-85-9, Beidellite 12173-47-6, Hectorite ((Mg2.67Li0.33)Si4Na0.33F2O10) 12174-06-0, Nontronite 12285-88-0, Magadiite 12285-95-9, Kenyaite 12286-87-2, Volkonskoite 14800-24-9, Benzyl trimethyl ammonium 15461-40-2, Octadecyl trimethyl ammonium 15853-37-9, Tetrabutyl phosphonium 16999-97-6, Butyl ammonium 19696-41-4, Dodecyl ammonium 21005-95-8, Hexyl ammonium 28724-32-5 28883-73-0 37612-69-4 44798-79-0, Bis(2-hydroxyethyl dimethyl) ammonium 45308-00-7, Tetraoctyl phosphonium 46338-39-0 59514-47-5 60687-87-8 83713-01-3 90578-97-5 274911-32-9 274911-33-0
RL: MOA (Modifier or additive use); USES (Uses)
(polymer/**clay** intercalated with two or more organic cations as **nanocomposites** with improved barrier properties)

IT 9003-53-6, Polystyrene 25038-59-9, Poly(ethylene terephthalate), uses 25038-91-9, 1,4-Cyclohexanedimethanol-ethylene glycol-terephthalic acid copolymer 25067-34-9, Ethylene-vinyl **alcohol** copolymer 25718-70-1, Adipic acid-m-xylylenediamine copolymer 25805-74-7, Adipic acid-m-xylylenediamine copolymer, sru
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/**clay** intercalated with two or more organic cations as **nanocomposites** with improved barrier properties)

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Allied Signal Inc; WO 9304117 A 1993 HCAPLUS
(2) Rheox Int; EP 0542266 A 1993 HCAPLUS
(3) Southern Clay Prod Inc; WO 8403096 A 1984 HCAPLUS

L86 ANSWER 6 OF 26 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2000:401910 HCAPLUS
DN 133:44391
ED Entered STN: 16 Jun 2000
TI Polymer intercalated **clays** as **nanocomposite** with improved gas barrier and its preparation
IN Barbee, Robert Boyd; Gilmer, John Walker; Matayabas, James Christopher, Jr.; Lan, Tie; Psihogios, Vasiliki
PA Eastman Chemical Company, USA
SO PCT Int. Appl., 48 pp.
CODEN: PIXXD2
DT **Patent**
LA English
IC C08K007-00; C08K009-04; C08K003-34
CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): 38

FAN.CNT 2

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2000034376	A1	20000615	WO 1999-US28988	19991207 <--

W: AU, BR, CA, CN, JP, MX
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE

US 2002022678	A1	20020221	US 1999-452821	19991201	<--
US 6391449	B1	20020521			
US 6653388	B1	20031125	US 1999-452318	19991201	<--
AU 2000021681	A5	20000626	AU 2000-21681	19991207	<--
AU 771071	B2	20040311			
BR 9916044	A	20011002	BR 1999-16044	19991207	<--
EP 1137706	A1	20011004	EP 1999-966036	19991207	<--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI					
JP 2003525964	T2	20030902	JP 2000-586817	19991207	<--
US 2004082698	A1	20040429	US 2003-685037	20031014	<--
PRAI US 1998-111074P	P	19981207 <--			
WO 1999-US28340	A	19991130			
US 1999-452318	A1	19991201			
WO 1999-US28988	W	19991207			

AB A polymer-**clay nanocomposite** comprises (i) a **melt**-processible matrix **polymer** (polyesters, polyamides, etc.), and (ii) a mixture of ≥2 layered intercalated **clay** materials. The **nanocomposite** may be a part of a multilayer material with the **nanocomposite** sandwiched between two outer polymer layers. Thus, an example **nanocomposite** was produced by mixing octadecyl tri-Me ammonium chloride/Laponite RD/sodium montmorillonite suspension to give an intercalated **clay** product and further mixing/molding with poly(ethylene terephthalate).

ST polyester **nanocomposite** expanded cation exchanged **clay** ; plastic container high gas barrier polyester; **clay** cation exchanged expanded polyester

IT Bentonite, uses
RL: MOA (Modifier or additive use); USES (Uses)
(calcian; of polymer-intercalated **clays** as **nanocomposites** with improved barrier properties)

IT Extrusion of plastics and rubbers
(of polymer-intercalated **clays** as **nanocomposites** with improved barrier properties)

IT Polyesters, uses
Polyesters, uses
Polyimides, uses
Polyimides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyamide-; polymer-intercalated **clays** as **nanocomposites** with improved barrier properties)

IT Polyamides, uses
Polyamides, uses
Polyethers, uses
Polyethers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyester-; polymer-intercalated **clays** as **nanocomposites** with improved barrier properties)

IT Polyesters, uses
Polyesters, uses
Polyimides, uses
Polyimides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyether-; polymer-intercalated **clays** as **nanocomposites** with improved barrier properties)

IT Polyamides, uses
Polyamides, uses
Polyethers, uses
Polyethers, uses

RL: TEM (Technical or engineered material use); USES (Uses)
(polyimide-; polymer-intercalated **clays** as **nanocomposites** with improved barrier properties)

IT **Nanocomposites**
(polymer-intercalated **clays** as)

IT Bottles
(polymer-intercalated **clays** as **nanocomposites** with improved barrier properties)

IT Bentonite, uses
Clays, uses
Mica-group minerals, uses
Quaternary ammonium compounds, uses
RL: MOA (Modifier or additive use); USES (Uses)
(polymer-intercalated **clays** as **nanocomposites** with improved barrier properties)

IT Epoxy resins, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer-intercalated **clays** as **nanocomposites** with improved barrier properties)

IT Phenoxy resins
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer-intercalated **clays** as **nanocomposites** with improved barrier properties)

IT Polyamides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer-intercalated **clays** as **nanocomposites** with improved barrier properties)

IT Polyesters, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer-intercalated **clays** as **nanocomposites** with improved barrier properties)

IT Polyimides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer-intercalated **clays** as **nanocomposites** with improved barrier properties)

IT Polyolefins
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer-intercalated **clays** as **nanocomposites** with improved barrier properties)

IT Polyoxyphenylenes
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer-intercalated **clays** as **nanocomposites** with improved barrier properties)

IT Polyureas
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer-intercalated **clays** as **nanocomposites** with improved barrier properties)

IT Polyurethanes, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer-intercalated **clays** as **nanocomposites** with improved barrier properties)

IT Bentonite, uses
RL: MOA (Modifier or additive use); USES (Uses)
(sodian; of polymer-intercalated **clays** as **nanocomposites** with improved barrier properties)

IT Permeability
(to oxygen; polymer-intercalated **clays** as **nanocomposites** with improved barrier properties)

IT 112-03-8, Octadecyltrimethylammonium chloride

RL: MOA (Modifier or additive use); USES (Uses)
(Arquad 18/50; polymer-intercalated **clays** as **nanocomposites** with improved barrier properties)

IT 28724-32-5, Methyl octadecyl bis(polyoxyethylene) ammonium chloride
RL: MOA (Modifier or additive use); USES (Uses)
(Ethoquad 18/25; polymer-intercalated **clays** as **nanocomposites** with improved barrier properties)

IT 51-92-3, Tetramethyl ammonium 1318-00-9, Vermiculite 1318-93-0D, Montmorillonite ((Al1.33-1.67Mg0.33-0.67)(Ca0-1Na0-1)0.33Si4(OH)2O10.xH2O), sodium-exchanged, uses 1319-41-1, Saponite ((Mg0.5-1Fe0-0.5)3(Si3.67Al0.33)(Na0-0.33Ca0-0.17)(OH)2O10.4H2O) 10549-76-5, Tetrabutyl ammonium 12172-85-9, Beidellite 12173-47-6, Hectorite ((Mg2.67Li0.33)Si4Na0.33F2O10) 12174-06-0, Nontronite 12285-88-0, Magadiite 12285-95-9, Kenyaite 12286-87-2, Volkonskoite 14800-24-9, Benzyltrimethylammonium 15461-40-2, Octadecyl trimethyl ammonium 15853-37-9, Tetrabutyl phosphonium 16999-97-6, Butyl ammonium 19696-41-4, Dodecyl ammonium 21005-95-8, Hexyl ammonium 28883-73-0, Octadecyl bis(polyoxyethylene)ammonium chloride 37612-69-4 44798-79-0, Bis(2-hydroxyethyldimethyl)ammonium 45308-00-7, Tetraoctyl phosphonium 46338-39-0 59514-47-5 60687-87-8 227605-22-3, Laponite RD 274911-32-9 274911-33-0
RL: MOA (Modifier or additive use); USES (Uses)
(polymer-intercalated **clays** as **nanocomposites** with improved barrier properties)

IT 25640-14-6, Kodapak PET 9921
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polymer-intercalated **clays** as **nanocomposites** with improved barrier properties)

IT 9003-53-6, Polystyrene 25038-59-9, Poly(ethylene terephthalate), uses 25067-34-9, Ethylene-vinyl **alcohol** copolymer 25718-70-1, Adipic acid-m-xylylenediamine copolymer 25805-74-7, Adipic acid-m-xylylenediamine copolymer, sru
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer-intercalated **clays** as **nanocomposites** with improved barrier properties)

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Asahi Kasei Kogyo KK; JP 09-217012 A Database WPI 1997 HCAPLUS
(2) Concrete Sealants Inc; WO 9625458 A 1996 HCAPLUS
(3) Exxon Chemical Patents Inc; WO 9853000 A 1998 HCAPLUS
(4) Southern Clay Prod Inc; WO 9717398 A 1997 HCAPLUS

L86 ANSWER 7 OF 26 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2000:401909 HCAPLUS
DN 133:44390
ED Entered STN: 16 Jun 2000
TI Polymer/intercalated **clays** as **nanocomposite** with improved gas barrier and its preparation
IN Barbee, Robert Boyd; Gilmer, John Walker; Matayabas, James Christopher, Jr.; Lan, Tie; Psihogios, Vasiliki
PA Eastman Chemical Company, USA
SO PCT Int. Appl., 43 pp.
CODEN: PIXXD2
DT **Patent**
LA English
IC ICM C08K007-00
ICS C08K009-04; C08K003-34
CC 37-6 (Plastics Manufacture and Processing)

Section cross-reference(s): 38

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000034375	A1	20000615	WO 1999-US28340	19991130 <--
	W: AU, BR, CA, CN, IN, JP, MX				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	AU 2000018370	A5	20000626	AU 2000-18370	19991130 <--
	US 2002022678	A1	20020221	US 1999-452821	19991201 <--
	US 6391449	B1	20020521		
	US 6653388	B1	20031125	US 1999-452318	19991201 <--
	AU 2000021681	A5	20000626	AU 2000-21681	19991207 <--
	AU 771071	B2	20040311		
	BR 9916044	A	20011002	BR 1999-16044	19991207 <--
	EP 1137706	A1	20011004	EP 1999-966036	19991207 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	JP 2003525964	T2	20030902	JP 2000-586817	19991207 <--
	US 2004082698	A1	20040429	US 2003-685037	20031014 <--
PRAI	US 1998-111074P	P	19981207 <--		
	WO 1999-US28340	W	19991130		
	US 1999-452318	A1	19991201		
	WO 1999-US28988	W	19991207		

AB A polymer-**clay nanocomposite** comprises (i) a **melt**-processible matrix **polymer** (polyesters, polyamides, etc.), and (ii) a mixture of ≥2 layered intercalated **clay** materials. The **nanocomposite** may be a part of a multilayer material with the **nanocomposite** sandwiched between two outer polymer layers. Thus, an example **nanocomposite** was produced by mixing octadecyl tri-Me ammonium chloride/Laponite RD/sodium montmorillonite suspension to give an intercalated **clay** product and further mixing/molding with poly(ethylene terephthalate).

ST polyester **nanocomposite** expanded cation exchanged **clay** ; plastic container high gas barrier polyester; **clay** cation exchanged expanded polyester

IT Polyesters, uses
Polyesters, uses
Polyimides, uses
Polyimides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyamide-; polymer/two or more layered intercalated **clays** as **nanocomposites** with improved barrier properties)

IT Polyamides, uses
Polyamides, uses
Polyethers, uses
Polyethers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyester-; polymer/two or more layered intercalated **clays** as **nanocomposites** with improved barrier properties)

IT Polyesters, uses
Polyesters, uses
Polyimides, uses
Polyimides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyether-; polymer/two or more layered intercalated **clays** as **nanocomposites** with improved barrier properties)

IT Polyamides, uses
Polyamides, uses

Polyethers, uses
Polyethers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyimide-; polymer/two or more layered intercalated **clays** as **nanocomposites** with improved barrier properties)

IT **Nanocomposites**
(polymer/two or more layered intercalated **clays** as)

IT Bottles
(polymer/two or more layered intercalated **clays** as **nanocomposites** with improved barrier properties)

IT Bentonite, uses
Clays, uses
Mica-group minerals, uses
Quaternary ammonium compounds, uses
RL: MOA (Modifier or additive use); USES (Uses)
(polymer/two or more layered intercalated **clays** as **nanocomposites** with improved barrier properties)

IT Epoxy resins, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/two or more layered intercalated **clays** as **nanocomposites** with improved barrier properties)

IT Phenoxy resins
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/two or more layered intercalated **clays** as **nanocomposites** with improved barrier properties)

IT Polyamides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/two or more layered intercalated **clays** as **nanocomposites** with improved barrier properties)

IT Polyesters, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/two or more layered intercalated **clays** as **nanocomposites** with improved barrier properties)

IT Polyimides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/two or more layered intercalated **clays** as **nanocomposites** with improved barrier properties)

IT Polyolefins
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/two or more layered intercalated **clays** as **nanocomposites** with improved barrier properties)

IT Polyoxyphenylenes
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/two or more layered intercalated **clays** as **nanocomposites** with improved barrier properties)

IT Polyureas
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/two or more layered intercalated **clays** as **nanocomposites** with improved barrier properties)

IT Polyurethanes, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/two or more layered intercalated **clays** as **nanocomposites** with improved barrier properties)

IT Permeability
(to oxygen; polymer/two or more layered intercalated **clays** as **nanocomposites** with improved barrier properties)

IT 112-03-8, Octadecyltrimethylammonium chloride
RL: MOA (Modifier or additive use); USES (Uses)
(Arquad 18-50; polymer/two or more layered intercalated **clays**

as **nanocomposites** with improved barrier properties)
IT 28724-32-5, Methyl octadecyl bis(polyoxyethylene) ammonium chloride
RL: MOA (Modifier or additive use); USES (Uses)
(Ethoquad 18/25; polymer/two or more layered intercalated **clays** as **nanocomposites** with improved barrier properties)
IT 25640-14-6, PET 9921
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(PET 9921; polymer/two or more layered intercalated **clays** as **nanocomposites** with improved barrier properties)
IT 51-92-3, Tetramethyl ammonium 1318-00-9, Vermiculite 1318-93-0D, Montmorillonite ((Al1.33-1.67Mg0.33-0.67)(Ca0-1Na0-1)0.33Si4(OH)2O10.xH2O), sodium-exchanged, uses 1319-41-1, Saponite 10549-76-5, Tetrabutyl ammonium 12172-85-9, Beidellite 12173-47-6, Hectorite ((Mg2.67Li0.33)Si4Na0.33F2O10) 12174-06-0, Nontronite 12285-88-0, Magadiite 12285-95-9, Kenyaite 12286-87-2, Volkonskoite 14800-24-9, Benzyltrimethylammonium 15461-40-2, Octadecyl trimethyl ammonium 15853-37-9, Tetrabutyl phosphonium 16999-97-6, Butyl ammonium 19696-41-4, Dodecyl ammonium 21005-95-8, Hexyl ammonium 28883-73-0, Octadecylbis(polyoxyethylene)ammonium hydrochloride 37612-69-4, Octadecylbenzyldimethylammonium 44798-79-0, Bis(2-hydroxyethyldimethyl)ammonium 45308-00-7, Tetraoctyl phosphonium 46338-39-0, Butylbenzyldimethylammonium 59514-47-5, Octadecyltriphenylphosphonium 60687-87-8, Bis(2-hydroxyethyl)octadecylmethylammonium 227605-22-3, Laponite RD 274911-32-9, Benzylhexyldimethyl ammonium 274911-33-0, Trioctyloctadecylphosphonium
RL: MOA (Modifier or additive use); USES (Uses)
(polymer/two or more layered intercalated **clays** as **nanocomposites** with improved barrier properties)
IT 9003-53-6, Polystyrene 25038-59-9, Poly(ethylene terephthalate), uses 25067-34-9, Ethylene-vinyl **alcohol** copolymer 25718-70-1, Adipic acid-m-xylylenediamine copolymer 25805-74-7, Adipic acid-m-xylylenediamine copolymer, sru
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer/two or more layered intercalated **clays** as **nanocomposites** with improved barrier properties)
RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Asahi Kasei Kogyo KK; JP 09-217012 A Database WPI 1997 HCAPLUS
(2) Concrete Sealants Inc; WO 9625458 A 1996 HCAPLUS
(3) Exxon Chemical Patents Inc; WO 9853000 A 1998 HCAPLUS
(4) Southern Clay Prod Inc; WO 9717398 A 1997 HCAPLUS

L86 ANSWER 8 OF 26 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2000:408679 HCAPLUS
DN 133:31886
ED Entered STN: 20 Jun 2000
TI Corrosion- and moisture-resistant cardboard sheets
IN Ishii, Etsuko
PA Oji Paper Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
IC ICM B32B003-28
ICS B05D005-00; B31F001-00; B32B029-08
CC 42-10 (Coatings, Inks, and Related Products)
Section cross-reference(s): 38

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000167952	A2	20000620	JP 1998-342617	19981202 <--
PRAI	JP 1998-342617		19981202 <--		

AB A title sheet consists of a wavy core and surface liners with one of the liner containing anticorrosive agents and the other liner containing moistureproof layers prepared by coating base paper with phyllosilicate-containing **resin emulsions**. An **aqueous** composition containing dicyclohexylamine, H3PO4, and **NaNO2** and an **aqueous** emulsion containing A 21 (**mica**), HOJ 4027, and KBM 603 were used as the above anticorrosive agent and moistureproof coating, resp.

ST moistureproof SBR coating cardboard sheet; anticorrosive liner cardboard sheet

IT Styrene-butadiene rubber, uses
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(acrylic acid-grafted, HOJ 4027, coatings; cardboard sheets containing anticorrosive liners and moistureproof coating-coated liners)

IT Paperboard
(cardboard sheets containing anticorrosive liners and moistureproof coating-coated liners)

IT Coupling agents
(in coatings; cardboard sheets containing anticorrosive liners and moistureproof coating-coated liners)

IT **Mica**-group minerals, uses
RL: MOA (Modifier or additive use); USES (Uses)
(in coatings; cardboard sheets containing anticorrosive liners and moistureproof coating-coated liners)

IT Coating materials
(**water**-resistant; cardboard sheets containing anticorrosive liners and moistureproof coating-coated liners)

IT 101-83-7, Dicyclohexylamine 7632-00-0, Sodium nitrite 7664-38-2, Phosphoric acid, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(in anticorrosive agents; cardboard sheets containing anticorrosive liners and moistureproof coating-coated liners)

IT 1760-24-3, KBM 603
RL: MOA (Modifier or additive use); USES (Uses)
(in coatings; cardboard sheets containing anticorrosive liners and moistureproof coating-coated liners)

L86 ANSWER 9 OF 26 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1999:421617 HCAPLUS
DN 131:74616
ED Entered STN: 08 Jul 1999
TI Polyester **nanocomposites** with dispersed expanded cation-exchanged **clay** materials for high gas barrier applications
IN Barbee, Robert Boyd; Matayabas, James Christopher, Jr.; Trexler, Jack Wesley, Jr.; Piner, Rodney Layne
PA Eastman Chemical Company, USA
SO PCT Int. Appl., 23 pp.
CODEN: PIXXD2
DT **Patent**
LA English
IC ICM C01B033-44
ICS C08K009-04

CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 17, 63

FAN.CNT 3

	PATENT NO.	KIND	DATE		APPLICATION NO.	DATE	
PI	WO 9932403	A1	19990701		WO 1997-US24103	19971230	<--
	W: BR, BY, CA, CN, JP, MX, RU						
	RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE						
	US 6034163	A	20000307		US 1997-995178	19971222	<--
	CA 2315076	AA	19990701		CA 1997-2315076	19971230	<--
	EP 1040081	A1	20001004		EP 1997-954281	19971230	<--
	EP 1040081	B1	20030730				
	R: DE, ES, FR, GB, NL						
	BR 9714936	A	20001024		BR 1997-14936	19971230	<--
	JP 2001526313	T2	20011218		JP 2000-525345	19971230	<--
PRAI	US 1997-995178	A	19971222	<--			
	WO 1997-US24103	W	19971230	<--			

OS MARPAT 131:74616

AB **Polymers**, especially polyesters, are **melt** mixed with ≤30 weight% layered **clay** materials, which have been cation exchanged with organic salts of formula (MR1R2R3R4)X where M is N or P; X is an anion selected from a halogen, especially Cl or Br, hydroxide or acetate; R1 is C≥8 straight and branched alkyl groups; R2-4 are (sep.) straight or branched C1-4-alkyl groups, and treated (swelled) with ≥1 expanding agents compatible with the polymer. The **clay** compns. show vastly improved platelet separation as evidenced by higher than previously reported basal spacing, resulting in improved dispersion in the polyester. The polyester composite materials exhibit lower gas permeabilities and can be used for forming packages or containers with improved gas barrier properties, e.g., for foods, soft drinks and medicines.

ST polyester compn expanded cation exchanged **clay**; **clay** cation exchanged expanded polyester compn; plastic container high gas barrier polyester; packaging low gas permeability polyester **clay**

IT Quaternary ammonium compounds, uses
RL: NUU (Other use, unclassified); USES (Uses)
(bis(hydroxyethyl)methyltallow alkyl, chlorides, Ethoquad T 12; polyester **nanocomposites** with dispersed cation-exchanged **clays** for high gas barrier applications)

IT Polysiloxanes, uses
RL: NUU (Other use, unclassified); USES (Uses)
(carbinol-terminated, expanding agents; polyester **nanocomposites** with dispersed cation exchanged **clays** for high gas barrier applications)

IT Medical goods
Medical goods
(containers; polyester **nanocomposites** with dispersed cation exchanged **clays** for high gas barrier applications)

IT Epoxy resins, uses
Polycarbonates, uses
RL: NUU (Other use, unclassified); USES (Uses)
(expanding agent; polyester **nanocomposites** with dispersed cation exchanged **clays** for high gas barrier applications)

IT Polyoxyalkylenes, uses
RL: NUU (Other use, unclassified); USES (Uses)
(expanding agent; polyester **nanocomposites** with dispersed cation-exchanged **clays** for high gas barrier applications)

IT Polyethers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(hydroxy-terminated; polyester **nanocomposites** with dispersed

cation exchanged **clays** for high gas barrier applications)

IT **Clays**, uses
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(layered, cation-exchanged, expanded; polyester **nanocomposites** with dispersed cation exchanged **clays** for high gas barrier applications)

IT Containers
Containers
(medical; polyester **nanocomposites** with dispersed cation exchanged **clays** for high gas barrier applications)

IT **Clays**, uses
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(montmorillonitic, layered, cation-exchanged, expanded; polyester **nanocomposites** with dispersed cation exchanged **clays** for high gas barrier applications)

IT Polyoxyalkylenes, uses
RL: NUU (Other use, unclassified); USES (Uses)
(phosphono-terminated; polyester **nanocomposites** with dispersed cation exchanged **clays** for high gas barrier applications)

IT Polyesters, uses
Polyesters, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyamide-; polyester **nanocomposites** with dispersed cation exchanged **clays** for high gas barrier applications)

IT Containers
Food packaging materials
Packaging materials
(polyester **nanocomposites** with dispersed cation exchanged **clays** for high gas barrier applications)

IT Phosphonium compounds
Quaternary ammonium compounds, uses
RL: NUU (Other use, unclassified); USES (Uses)
(polyester **nanocomposites** with dispersed cation exchanged **clays** for high gas barrier applications)

IT Polyamides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyester **nanocomposites** with dispersed cation exchanged **clays** for high gas barrier applications)

IT Polyesters, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyester **nanocomposites** with dispersed cation exchanged **clays** for high gas barrier applications)

IT Polymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyester **nanocomposites** with dispersed cation exchanged **clays** for high gas barrier applications)

IT Polyolefins
RL: TEM (Technical or engineered material use); USES (Uses)
(polyester **nanocomposites** with dispersed cation exchanged **clays** for high gas barrier applications)

IT Polyoxyarylenes
RL: TEM (Technical or engineered material use); USES (Uses)
(polyester **nanocomposites** with dispersed cation exchanged **clays** for high gas barrier applications)

IT Polysulfones, uses
RL: TEM (Technical or engineered material use); USES (Uses)

(polyester **nanocomposites** with dispersed cation exchanged **clays** for high gas barrier applications)

IT Polythioarylenes
RL: TEM (Technical or engineered material use); USES (Uses)
(polyester **nanocomposites** with dispersed cation exchanged **clays** for high gas barrier applications)

IT Polyurethanes, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyester **nanocomposites** with dispersed cation exchanged **clays** for high gas barrier applications)

IT Thermoplastic rubber
RL: TEM (Technical or engineered material use); USES (Uses)
(polyester **nanocomposites** with dispersed cation exchanged **clays** for high gas barrier applications)

IT Polyamides, uses
Polyamides, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyester-; polyester **nanocomposites** with dispersed cation exchanged **clays** for high gas barrier applications)

IT Polyimides, uses
Polyimides, uses
Polyketones
Polyketones
RL: TEM (Technical or engineered material use); USES (Uses)
(polyether-; polyester **nanocomposites** with dispersed cation exchanged **clays** for high gas barrier applications)

IT Polyethers, uses
Polyethers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyimide-; polyester **nanocomposites** with dispersed cation exchanged **clays** for high gas barrier applications)

IT Polyethers, uses
Polyethers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyketone-; polyester **nanocomposites** with dispersed cation exchanged **clays** for high gas barrier applications)

IT Lactones
Vinyl compounds, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polymers; polyester **nanocomposites** with dispersed cation exchanged **clays** for high gas barrier applications)

IT Plastics, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(thermoplastics; polyester **nanocomposites** with dispersed cation exchanged **clays** for high gas barrier applications)

IT 26374-91-4, Poly(glycidyl acrylate)
RL: NUU (Other use, unclassified); USES (Uses)
(PD 7610, expanding agent; polyester **nanocomposites** with dispersed cation-exchanged **clays** for high gas barrier applications)

IT 9003-53-6, Polystyrene
RL: NUU (Other use, unclassified); USES (Uses)
(Polysar 101, expanding agent; polyester **nanocomposites** with dispersed cation-exchanged **clays** for high gas barrier applications)

IT 31692-79-2, Dimethylhydroxysilyl-terminated polydimethylsiloxane
RL: NUU (Other use, unclassified); USES (Uses)
(expanding agent; polyester **nanocomposites** with dispersed cation exchanged **clays** for high gas barrier applications)

IT 1406-18-4, Vitamin E 9003-39-8, Poly(vinylpyrrolidone) 9005-08-7
24936-68-3, Makrolon 2608, uses 24980-41-4, Polycaprolactone
25037-45-0 25068-38-6, Epon 828 25248-42-4, Polycaprolactone
25322-68-3 25640-14-6, PETG 6763 28724-32-5, Ethoquad 18-25
37208-27-8, Zonyl A 54590-72-6, AQ55 123940-15-8, SCX 800B
RL: NUU (Other use, unclassified); USES (Uses)
(expanding agent; polyester **nanocomposites** with dispersed cation-exchanged **clays** for high gas barrier applications)

IT 1318-93-0D, Montmorillonite, cation-exchanged
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(layered, expanded; polyester **nanocomposites** with dispersed cation-exchanged **clays** for high gas barrier applications)

IT 31900-57-9D, Dimethylsilanediol homopolymer, hydroxy-terminated
RL: NUU (Other use, unclassified); USES (Uses)
(polyester **nanocomposites** with dispersed cation exchanged **clays** for high gas barrier applications)

IT 107-13-1D, Acrylonitrile, polymers 9003-55-8D, Butadiene-styrene copolymer, methacrylate derivs. 9004-34-6D, Cellulose, esters, uses 9010-86-0, Ethyl acrylate-ethylene copolymer 9010-92-8, Methacrylic acid-styrene copolymer
RL: TEM (Technical or engineered material use); USES (Uses)
(polyester **nanocomposites** with dispersed cation exchanged **clays** for high gas barrier applications)

IT 112-00-5, Dodecyltrimethylammonium chloride 112-03-8, Octadecyltrimethylammonium chloride 122-19-0, Octadecylbenzyldimethylammonium chloride 929-73-7, Dodecylammonium chloride 1838-08-0, Octadecylammonium chloride 3010-24-0, Bis(2-hydroxyethyl)methyloctadecylammonium chloride 6439-71-0, Hexadecyltributylammonium chloride 26635-92-7
RL: NUU (Other use, unclassified); USES (Uses)
(polyester **nanocomposites** with dispersed cation-exchanged **clays** for high gas barrier applications)

IT 25067-34-9, Ethylene-vinyl **alcohol** copolymer
RL: TEM (Technical or engineered material use); USES (Uses)
(polyester **nanocomposites** with dispersed cation-exchanged **clays** for high gas barrier applications)

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) DOW Chemical Co; WO 9730950 A 1997 HCAPLUS
(2) Kawasumi, M; Macromolecules 1997, V30, P6333 HCAPLUS
(3) Toyoda Chuo Kenkyusho KK; EP 0459472 A 1991 HCAPLUS

L86 ANSWER 10 OF 26 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1999:107117 HCAPLUS
DN 130:210895
ED Entered STN: 16 Feb 1999
TI Lightweight aggregates and materials for trowelling
IN Ishimura, Katsuyoshi; Mure, Kiyomi
PA Umehiko K. K., Japan; Sun Light K. K.
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
IC ICM C09D001-00
ICS E04F013-02
CC 42-11 (Coatings, Inks, and Related Products)
Section cross-reference(s): 58
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 11035845	A2	19990209	JP 1997-214008	19970723 <--
PRAI	JP 1997-214008		19970723 <--		

AB The aggregates are granules consisting of 50-100% glass-**clay** mineral-based lightwt. foams and 0-50% siliceous sand and are colored with pigments and binders, dried, and blended with **H2O**-soluble sizes, binders, and **H2O** to give the trowelling materials, especially for sand walls. Thus, 60 kg siliceous sand was blended with 80 kg glass-**clay** mineral-based lightwt. foams (G Light), treated with 8.5 kg **aqueous resin emulsion** (**Nanocryl** BCX 3893), stirred with premixed 2.4 kg **clay** and 1.6 kg yellow Fe oxide pigments (Bayer 920), and dried at 120° to give granules, which were mixed with CM-cellulose, ethylene-vinyl acetate **polymer emulsion** (Polysol EVAP 4), and **H2O** to give a trowelling material having less thermal conductivity compared to a control with 100% siliceous sand aggregates.

ST trowelling lightwt aggregate glass **clay** foam; thermal insulator sand wall lightwt aggregate

IT Soda-lime glasses
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(calcium silicate composite, porous; lightwt. aggregates for trowelling materials)

IT **Clay** minerals
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(glass composites, cellular; lightwt. aggregates for trowelling materials)

IT Thermal insulators
Walls (construction)
(lightwt. aggregates for trowelling materials)

IT **Clays**, uses
Foamed glass
Kaolin, uses
Sand
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(lightwt. aggregates for trowelling materials)

IT Aggregates
(lightwt., glass-**clay** mineral foams; lightwt. aggregates for trowelling materials)

IT 51274-00-1, Yellow iron oxide
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(Bayferrox 920; lightwt. aggregates for trowelling materials)

IT 1308-38-9, Chromium oxide (Cr2O3), uses
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(Green GN; lightwt. aggregates for trowelling materials)

IT 9004-32-4, Daicel 1170
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(Sunrose GK 91; lightwt. aggregates for trowelling materials)

IT 79-10-7D, Acrylic acid, esters, polymers with vinyl acetate 108-05-4D, Vinyl acetate, polymers with acrylic acid esters 471-34-1, Calcium carbonate, uses 13463-67-7D, Titanium oxide, surface-treated 24937-78-8, Polysol EVAP 4 25852-37-3, Mowinyl DM 772 87714-59-8, Mowinyl DM 200 94336-25-1, Polysol PS 120 191490-35-4, G Light

198495-59-9, Hi-Metolose 90SH4000 198841-43-9, RL 68 (oxide)
220945-38-0, **Nanocryl** BCX 3893 220971-00-6, Resino Yellow LN
200N
RL: PRP (Properties); TEM (Technical or engineered material use); USES
(Uses)
(lightwt. aggregates for trowelling materials)

L86 ANSWER 11 OF 26 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1999:21599 HCAPLUS
DN 130:96341
ED Entered STN: 12 Jan 1999
TI Hybrid **nanocomposites** comprising layered inorganic material and their preparation using particulate crosslinker composition
IN Pinnavaia, Thomas J.; Lan, Tie
PA Claytec, Inc., USA
SO U.S., 17 pp.
CODEN: USXXAM
DT **Patent**
LA English
IC ICM B32B005-16
ICS C08K009-00
NCL 428403000
CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): 38
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5853886	A	19981229	US 1996-665518	19960617 <--
	US 6017632	A	20000125	US 1998-137518	19980820 <--
	US 6096803	A	20000801	US 1998-136939	19980820 <--
PRAI	US 1996-665518	A3	19960617 <--		

AB The particulate concentrate compns. are formed by intercalation of a polymer polymerizing component (e.g. crosslinker, reactive component, catalyst and having a basic group) into the galleries of a layered inorg. cation exchange composition (initially in proton-exchanged form such as a 2:1 layered silicate cation exchangers) for the preparation of cured polymer-inorg. **nanolayer** hybrid composites. A polymer precursor, a mixture of **polymer** precursors, or a **polymer melt** is introduced into the galleries of the inorg. cation exchanger and reacts with the polymer polymerizing component to form a cured polymer-inorg. **nanolayer** hybrid composite. Powdered Jeffamine D-2000 curing agent (precursor)-H+ -montmorillonite concentrate (basal spacing 46 Å) was used to prepare epoxy polymer-exfoliated silicate **nanocomposite.**
ST polyetheramine silicate intercalate powd conc; epoxy resin **clay** **nanocomposite;** proton exchanged **clay** polyetheramine intercalate; exfoliated **clay** epoxy **nanocomposite;** mech property **clay** epoxy **nanocomposite; solvent** resistance **clay** epoxy **nanocomposite;** adhesiveness **clay** epoxy **nanocomposite**
IT Epoxy resins, preparation
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(also as epoxy **clay** powder concentrate; **nanocomposite** prepared using powdered layered silicate/crosslinker concentrate)
IT **Nanocomposites**
(comprising powdered layered silicate/crosslinker concentrate)
IT Alkyd resins
Aminoplasts
Phenolic resins, uses

Polyamides, uses
Polyesters, uses
Polyimides, uses
Polyolefins
Polyoxyalkylenes, uses
Polyoxymethylenes, uses
Polysiloxanes, uses
Polysulfides
Polyureas
Polyurethanes, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**nanocomposite** prepared using powdered layered silicate/crosslinker concentrate)

IT **Clays**, properties
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(smectitic; comprising powdered layered silicate/crosslinker concentrate for **nanocomposite**)

IT Plastics, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(thermosetting; **nanocomposite** prepared using powdered layered silicate/crosslinker concentrate)

IT 68003-11-2P, Bisphenol A-epichlorohydrin-Versamid 125 copolymer
68311-01-3P, Bisphenol A-epichlorohydrin-Versamid 140 copolymer
68318-44-5P, Bisphenol A-epichlorohydrin-Jeffamine D 2000 copolymer
111307-30-3P 122673-79-4P, Bisphenol A-epichlorohydrin-Jeffamine T 3000 copolymer
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**nanocomposite** prepared using powdered layered silicate/crosslinker concentrate)

IT 9003-08-1, Formaldehyde-melamine copolymer 9003-35-4, Formaldehyde-phenol copolymer 9011-05-6, Formaldehyde-urea copolymer 24980-41-4, Polycaprolactone 25038-54-4, Poly[imino(1-oxo-1,6-hexanediyl)], uses 25248-42-4, Polycaprolactone 25322-68-3 26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] 26680-10-4, Polylactide
RL: TEM (Technical or engineered material use); USES (Uses)
(**nanocomposite** prepared using powdered layered silicate/crosslinker concentrate)

IT 1318-00-9, Vermiculite 1318-93-0, Montmorillonite, properties
12173-47-6, Fluorohectorite 12174-40-2, Rectorite 106495-23-2, Hydroxylhectorite ((Mg2.67Li0.33)Si4Na0.33[(OH)0.5-1F0-0.5]2O10)
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(proton-exchanged; comprising powdered layered silicate/crosslinker concentrate
for **nanocomposite**)

RE.CNT 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Anon; CA 1004859 1977
(2) Anon; WO 9304117 1993 HCAPLUS
(3) Anon; WO 9304118 1993 HCAPLUS
(4) Bash; US 3432370 1969 HCAPLUS
(5) Beall; US 5552469 1996 HCAPLUS
(6) Beall; US 5698624 1997 HCAPLUS
(7) Beall; US 5760121 1998 HCAPLUS
(8) Becker; US 3847726 1974 HCAPLUS
(9) Christiani; US 5747560 1998 HCAPLUS

(10) Fukushima, Y; Clay Miner 1988, V23, P27 HCAPLUS
(11) Fukushima, Y; J Inclusion Phenom 1987, V5, P473 HCAPLUS
(12) Giannelis; US 5032546 1991 HCAPLUS
(13) Giannelis, E; JOM 1992, V44, P28 HCAPLUS
(14) Gleiter, H; Adv Mater 1992, V4, P474 HCAPLUS
(15) Johnson; US 4376729 1983 HCAPLUS
(16) Kato, C; Clays Clay Miner 1979, V27, P129 HCAPLUS
(17) Kojima, Y; J Mater Res 1993, V8, P1185 HCAPLUS
(18) Lan, T; Chem Mater 1994, V6, P2216 HCAPLUS
(19) McCauley; US 5202295 1993 HCAPLUS
(20) Messersmith, P; Chem Mater 1993, V5, P1064 HCAPLUS
(21) Novak, B; Adv Mater 1993, V5, P422 HCAPLUS
(22) Pinnavaia; US 5726113 1998 HCAPLUS
(23) Pinnavaia; US 5760106 1998 HCAPLUS
(24) Pinnavaia, T; Science 1983, V220, P365 HCAPLUS
(25) Stevens; US 3511725 1970 HCAPLUS
(26) Sugahara, Y; J Ceram Soc Jpn 1992, V100, P413 HCAPLUS
(27) Tani; US 5527871 1996 HCAPLUS
(28) Usuki; US 4889885 1989 HCAPLUS
(29) Usuki, A; J Mater Res 1993, V8, P1179 HCAPLUS
(30) Vaia; Advanced materials) 1995, V7, P154 HCAPLUS
(31) Vaia, R; Chem Mater 1993, V5, P1694 HCAPLUS

L86 ANSWER 12 OF 26 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1998:785694 HCAPLUS
DN 130:39505
ED Entered STN: 15 Dec 1998
TI Intercalates and/or exfoliates formed with non-ethylene-vinyl **alc**
. monomers, oligomers and polymers; and poly(ethylene-vinyl **alc**
.) composite materials
IN Serrano, Fernando; Engman, Steven J.; Beall, Gary W.
PA Amcol International Corporation, USA
SO U.S., 34 pp., Cont.-in-part of U.S. 5,760,121.
CODEN: USXXAM
DT **Patent**
LA English
IC ICM C08K003-34
NCL 524445000
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 37
FAN.CNT 11

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5844032	A	19981201	US 1996-761444	19961206 <--
	US 5552469	A	19960903	US 1995-488264	19950607 <--
	US 5578672	A	19961126	US 1995-480080	19950607 <--
	US 5698624	A	19971216	US 1995-488263	19950607 <--
	US 5721306	A	19980224	US 1995-525416	19950908 <--
	US 5760121	A	19980602	US 1996-637092	19960502 <--
	CA 2217913	AA	19980606	CA 1997-2217913	19971008 <--
	JP 10176091	A2	19980630	JP 1997-300911	19971031 <--
	EP 846723	A1	19980610	EP 1997-308841	19971104 <--
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	US 6228903	B1	20010508	US 1999-283954	19990401 <--
PRAI	US 1995-480080	A2	19950607 <--		
	US 1995-488263	YY	19950607 <--		
	US 1995-488263	A2	19950607 <--		
	US 1995-488264	YY	19950607 <--		

US 1995-488264	A2	19950607	<--
US 1995-525416	A2	19950908	<--
US 1996-637092	A2	19960502	<--
US 1996-691689	B1	19960802	<--
US 1996-761444	A	19961206	<--

AB **Nanocomposites** are manufactured by combining 40-99.5% ethylene-vinyl **alc.** (EVOH) matrix polymer and 0.05-60% exfoliated intercalates formed by contacting a phyllosilicate with a non-EVOH intercalant to adsorb or intercalate the intercalant between adjacent phyllosilicate platelets. Sufficient polymer is adsorbed between adjacent phyllosilicate platelets to expand the adjacent platelets to a spacing .gtorsim.5 Å, preferably .gtorsim.10 Å (as measured after **H2O** removal), .ltorsim.100 Å and preferably .apprx.30-40 Å, so that the intercalate easily can be exfoliated, e.g., when mixed with the EVOH matrix **polymer melt**, to provide an EVOH matrix polymer/platelet composite (**nanocomposite**) material that does not degrade the EVOH matrix polymer (through exposure to Na+). The exfoliated intercalate of Na montmorillonite and poly(vinyl pyrrolidone) was added to EVOH matrix polymer.

ST polyethylene vinyl **alc** matrix **nanocomposite**; polyvinylpyrrolidone sodium montmorillonite intercalate exfoliated; layered **clay** polymer intercalate **nanocomposite**

IT **Nanocomposites**
(**clay** intercalates and/or exfoliates formed with non-ethylene-vinyl **alc.** monomers, oligomers and polymers for ethylene-vinyl **alc.** polymer **nanocomposite** materials)

IT Polyamides, uses
Polycarbonates, uses
Polyesters, uses
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(**clay** intercalates and/or exfoliates formed with non-ethylene-vinyl **alc.** monomers, oligomers and polymers for ethylene-vinyl **alc.** polymer **nanocomposite** materials)

IT Phyllosilicate minerals
RL: TEM (Technical or engineered material use); USES (Uses)
(**clay** intercalates and/or exfoliates formed with non-ethylene-vinyl **alc.** monomers, oligomers and polymers for ethylene-vinyl **alc.** polymer **nanocomposite** materials)

IT **Clays**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(smectitic; **clay** intercalates and/or exfoliates formed with non-ethylene-vinyl **alc.** monomers, oligomers and polymers for ethylene-vinyl **alc.** polymer **nanocomposite** materials)

IT Bentonite, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(sodian; **clay** intercalates and/or exfoliates formed with non-ethylene-vinyl **alc.** monomers, oligomers and polymers for ethylene-vinyl **alc.** polymer **nanocomposite** materials)

IT 120-61-6D, Dimethyl terephthalate, polymers 959-26-2D, Bis(2-hydroxyethyl) terephthalate, polymers 9002-89-5, Poly(vinyl **alcohol**) 9003-39-8, Poly(vinyl pyrrolidone) 23358-95-4D, Bis(4-hydroxybutyl) terephthalate, polymers 25038-59-9, Poly(ethylene terephthalate), uses 25086-89-9, Vinyl acetate-vinyl pyrrolidone

copolymer
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(**clay** intercalates and/or exfoliates formed with non-ethylene-vinyl **alc.** monomers, oligomers and polymers for ethylene-vinyl **alc.** polymer **nanocomposite** materials)

IT 872-50-4, N-Methyl-2-pyrrolidone, uses 2687-91-4, N-Ethyl-2-pyrrolidone
RL: TEM (Technical or engineered material use); USES (Uses)
(**clay** intercalates and/or exfoliates formed with non-ethylene-vinyl **alc.** monomers, oligomers and polymers for ethylene-vinyl **alc.** polymer **nanocomposite** materials)

IT 25067-34-9, Ethylene-vinyl **alcohol** copolymer
RL: TEM (Technical or engineered material use); USES (Uses)
(matrix resin; **clay** intercalates and/or exfoliates formed with non-ethylene-vinyl **alc.** monomers, oligomers and polymers for ethylene-vinyl **alc.** polymer **nanocomposite** materials)

IT 1318-93-0, Montmorillonite ((Al1.33-1.67Mg0.33-0.67)(Ca0-1Na0-1)0.33Si4(OH)2O10.xH2O), uses
RL: TEM (Technical or engineered material use); USES (Uses)
(sodium-exchanged, preparation and characterization by x-ray; **clay** intercalates and/or exfoliates formed with non-ethylene-vinyl **alc.** monomers, oligomers and polymers for ethylene-vinyl **alc.** polymer **nanocomposite** materials)

RE.CNT 65 THERE ARE 65 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Alexander; US 4613542 1986 HCAPLUS
(2) Alexander; US 4624982 1986 HCAPLUS
(3) Andersen; US 5506046 1996 HCAPLUS
(4) Andersen; US 5508072 1996 HCAPLUS
(5) Anon; GB 1146668 1969
(6) Anon; DE 1642122 1970 HCAPLUS
(7) Anon; GB 1565362 1980 HCAPLUS
(8) Anon; EP 0205281 A3 1986 HCAPLUS
(9) Anon; EP 0335653 A1 1989 HCAPLUS
(10) Anon; EP 0358415 A1 1990 HCAPLUS
(11) Anon; EP 0479031 A1 1992 HCAPLUS
(12) Anon; EP 0548940 A1 1993 HCAPLUS
(13) Anon; WO 93/04117 1993 HCAPLUS
(14) Anon; WO 93/04118 1993 HCAPLUS
(15) Anon; EP 0645181 A2 1995 HCAPLUS
(16) Anon; EP 0761739 A1 1997 HCAPLUS
(17) Bujdak; 1993, P166 HCAPLUS
(18) Burns; US 3795650 1974 HCAPLUS
(19) Carter; US 5229451 1993 HCAPLUS
(20) Deguchi; US 5102948 1992 HCAPLUS
(21) Deguchi; US 5164440 1992 HCAPLUS
(22) Deguchi; US 5248720 1993 HCAPLUS
(23) Duffield; US 3515626 1970
(24) Friedman; US 5326500 1994 HCAPLUS
(25) Friedman; US 5340558 1994 HCAPLUS
(26) Fukui; US 5091462 1992 HCAPLUS
(27) Fukui; US 5206284 1993 HCAPLUS
(28) Giannelis; US 5032546 1991 HCAPLUS
(29) Giannelis; US 5032547 1991 HCAPLUS
(30) Gough; US 5667886 1997 HCAPLUS
(31) Hamilton; US 2035546 1936 HCAPLUS

(32) Hedrick; US 3419517 1968 HCAPLUS
(33) Herman; US 4210572 1980 HCAPLUS
(34) Hutton; US 4920171 1990 HCAPLUS
(35) Kamigaito; US 4472538 1984 HCAPLUS
(36) Kato; US 4875762 1989
(37) Kawasumi; US 4810734 1989 HCAPLUS
(38) Kishida; US 4546145 1985 HCAPLUS
(39) Knudson; US 4849006 1989 HCAPLUS
(40) Laughlin; US 3929678 1975 HCAPLUS
(41) Libor; US 4600744 1986 HCAPLUS
(42) Lyons; US 4125411 1978
(43) Mardis; US 4434075 1984 HCAPLUS
(44) Maxfield; US 5385776 1995
(45) Maxfield; US 5514734 1996 HCAPLUS
(46) McKinley; US 4500670 1985 HCAPLUS
(47) Miyasaka; US 5391437 1995 HCAPLUS
(48) Mukamal; US 4400485 1983 HCAPLUS
(49) Okada; US 4739007 1988 HCAPLUS
(50) Okada; US 4894411 1990 HCAPLUS
(51) Osborn; US 4251576 1981 HCAPLUS
(52) Ravet; US 4842651 1989 HCAPLUS
(53) Rice; US 4789403 1988 HCAPLUS
(54) Rice; US 4798766 1989 HCAPLUS
(55) Sanchez Camazano, M; 1983 HCAPLUS
(56) Simone; US 3912532 1975 HCAPLUS
(57) Takahashi; US 3773708 1973 HCAPLUS
(58) Tateyama; US 5204078 1993 HCAPLUS
(59) Tokoh; US 5428094 1995 HCAPLUS
(60) Ure; US 3419460 1968
(61) Usuki; US 4889885 1989 HCAPLUS
(62) Weber; US 4431755 1984 HCAPLUS
(63) Yano; US 5164460 1992 HCAPLUS
(64) Yano; Polymer Preprints ACS 1991, P65 HCAPLUS
(65) Yasue; US 5414042 1995 HCAPLUS

L86 ANSWER 13 OF 26 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1998:372624 HCAPLUS
DN 129:42057
ED Entered STN: 18 Jun 1998
TI Intercalates and exfoliates formed with oligomers and polymers and **solvent**
IN Beall, Gary W.; Tsipursky, Semeon; Sorokin, Anatoliy; Goldman, Anatoliy
PA AMCOL International Corp., USA
SO U.S., 44 pp., Cont.-in-part of U. S. Ser. No. 525,416.
CODEN: USXXAM
DT **Patent**
LA English
IC ICM C08J005-10
ICS C08K003-34; C08L077-00
NCL 524450000
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 37
FAN.CNT 11

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5760121	A	19980602	US 1996-637092	19960502 <--
	US 5552469	A	19960903	US 1995-488264	19950607 <--
	US 5578672	A	19961126	US 1995-480080	19950607 <--
	US 5698624	A	19971216	US 1995-488263	19950607 <--

	US 5721306	A	19980224	US 1995-525416	19950908	<--
	EP 747451	A2	19961211	EP 1996-303642	19960522	<--
	EP 747451	A3	19990728			
	R: AT, DE, ES, FR, GB, IT, PT					
	CA 2178441	AA	19961208	CA 1996-2178441	19960606	<--
	JP 09118518	A2	19970506	JP 1996-145561	19960607	<--
	US 5844032	A	19981201	US 1996-761444	19961206	<--
	US 5849830	A	19981215	US 1997-951094	19971015	<--
	US 5877248	A	19990302	US 1997-968408	19971112	<--
	US 5998528	A	19991207	US 1998-17421	19980202	<--
	US 6228903	B1	20010508	US 1999-283954	19990401	<--
PRAI	US 1995-480080	A2	19950607 <--			
	US 1995-488263	A2	19950607 <--			
	US 1995-488264	YY	19950607 <--			
	US 1995-488264	A2	19950607 <--			
	US 1995-525416	A2	19950908 <--			
	US 1996-637092	A	19960502 <--			
	US 1996-691689	B1	19960802 <--			

AB **Nanocomposites** are manufactured by combining 40-99.95% host material, such as an organic **solvent** or a matrix polymer and 0.05-60% exfoliated platelets; prepared by contacting a phyllosilicate with a polymer to adsorb or intercalate the polymer between adjacent phyllosilicate platelets without and onium ion or silane coupler. Sufficient polymer is adsorbed between adjacent phyllosilicate platelets to expand the adjacent platelets to a spacing .gtorsim.5 Å, preferably .gtorsim.10 Å (as measured after **H2O** removal), .ltorsim.100 Å and preferably .apprx.30-40 Å, so that the intercalate easily can be exfoliated, e.g., when mixed with an organic **solvent** or a **polymer melt**, to provide a carrier material for drugs and the like, or to provide a matrix polymer/platelet composite (**nanocomposite**) material, the platelets being exfoliated from the intercalate. The exfoliated intercalate of Na montmorillonite and poly(vinyl pyrrolidone) (I) depend on the quality of I sorbed between **clay** platelets.

ST polymer sorption **clay** intercalate; polyvinyl pyrrolidone sodium montmorillonite intercalate; layered **clay** polymer intercalate **nanocomposite**

IT Exfoliation
(**clay** intercalates and exfoliates formed with oligomers and polymers or **solvent**)

IT Phyllosilicate minerals
RL: TEM (Technical or engineered material use); USES (Uses)
(**clay** intercalates and exfoliates formed with oligomers and polymers or **solvent**)

IT **Nanocomposites**
(**clay** intercalates and exfoliates formed with oligomers and polymers or **solvent** for)

IT Polyamides, uses
Polycarbonates, uses
Polyesters, uses
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(**melt** matrix **polymer**; **clay** intercalates and exfoliates formed with oligomers and polymers or **solvent** for **nanocomposites**)

IT **Clays**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(smectitic; **clay** intercalates and exfoliates formed with oligomers and polymers or **solvent**)

IT Bentonite, uses

RL: TEM (Technical or engineered material use); USES (Uses)
(sodian; **clay** intercalates and exfoliates formed with oligomers and polymers or **solvent**)

IT Plastics, uses
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(thermoplastics, matrix polymer **nanocomposites**; **clay** intercalates and exfoliates formed with oligomers and polymers or **solvent** for **nanocomposites**)

IT Plastics, uses
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(thermosetting, matrix polymer **nanocomposites**; **clay** intercalates and exfoliates formed with oligomers and polymers or **solvent** for **nanocomposites**)

IT 56-81-5, Glycerol, uses 57-55-6, Propylene glycol, uses 107-21-1, Ethylene glycol, uses 7732-18-5, **Water**, uses
RL: NUU (Other use, unclassified); USES (Uses)
(**clay** intercalates and exfoliates formed with oligomers and polymers or **solvent**)

IT 9002-89-5, Poly(vinyl **alcohol**) 9003-20-7D, Poly(vinyl acetate), hydrolyzed 9003-39-8, Poly(vinyl pyrrolidone) 26336-38-9, Poly(vinylamine)
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(**clay** intercalates and exfoliates formed with oligomers and polymers or **solvent**)

IT 1318-00-9, Vermiculite 1319-41-1, Saponite 12172-85-9, Beidellite 12173-47-6, Hectorite 12173-60-3, Illite 12174-06-0, Nontronite 12174-40-2, Rectorite 12286-87-2, Volkonskoite 12417-86-6, Stevensite 12424-32-7, Sauconite 12510-56-4, Tarasovite 56997-00-3, Swinefordite
RL: TEM (Technical or engineered material use); USES (Uses)
(**clay** intercalates and exfoliates formed with oligomers and polymers or **solvent**)

IT 24968-12-5, Poly(butylene terephthalate) 26062-94-2, Poly(butylene terephthalate)
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(**clay** intercalates and exfoliates formed with oligomers and polymers or **solvent** for **nanocomposites**)

IT 109211-30-5 159715-91-0
RL: TEM (Technical or engineered material use); USES (Uses)
(intercalate; **clay** intercalates and exfoliates formed with oligomers and polymers or **solvent**)

IT 120-61-6D, Dimethyl terephthalate, **polymers** 959-26-2D, Bis(2-Hydroxyethyl) terephthalate, **polymers** 23358-95-4D, Bis(4-Hydroxybutyl) terephthalate, **polymers** 25038-59-9, Poly(ethylene terephthalate), uses
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(**melt** matrix **polymer**; **clay** intercalates and exfoliates formed with oligomers and polymers or **solvent** for **nanocomposites**)

IT 1318-93-0D, Sodium montmorillonite, sodium-exchanged
RL: TEM (Technical or engineered material use); USES (Uses)
(preparation and characterization by x-ray; **clay** intercalates and exfoliates formed with oligomers and polymers or **solvent**)

RE.CNT 56 THERE ARE 56 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

(1) Alexander; US 4613542 1986 HCAPLUS
(2) Alexander; US 4624982 1986 HCAPLUS
(3) Andersen; US 5506046 1996 HCAPLUS
(4) Andersen; US 5508072 1996 HCAPLUS
(5) Anon; GB 1146668 1969
(6) Anon; EP 0205281 A3 1986 HCAPLUS
(7) Anon; EP 0335653 A1 1989 HCAPLUS
(8) Anon; EP 0358415 A1 1990 HCAPLUS
(9) Anon; EP 0479031 A1 1993 HCAPLUS
(10) Anon; WO 9304117 1993 HCAPLUS
(11) Anon; WO 9304118 1993 HCAPLUS
(12) Bujdak; 1993, P166 HCAPLUS
(13) Burns; US 3795650 1974 HCAPLUS
(14) Carter; US 5229451 1993 HCAPLUS
(15) Deguchi; US 5102948 1992 HCAPLUS
(16) Deguchi; US 5164440 1992 HCAPLUS
(17) Deguchi; US 5248720 1993 HCAPLUS
(18) Duffield; US 3515626 1970
(19) Friedman; US 5326500 1994 HCAPLUS
(20) Friedman; US 5340558 1994 HCAPLUS
(21) Fukui; US 5091462 1992 HCAPLUS
(22) Fukui; US 5206284 1993 HCAPLUS
(23) Giannelis; US 5032546 1991 HCAPLUS
(24) Giannelis; US 5032547 1991 HCAPLUS
(25) Giannelis; Materials Research Society Symposium Proceedings 1992, V249, P547 HCAPLUS
(26) Hedrick; US 3419517 1968 HCAPLUS
(27) Herman; US 4210572 1980 HCAPLUS
(28) Hutton; US 4920171 1990 HCAPLUS
(29) Kamigaito; US 4472538 1984 HCAPLUS
(30) Kawasumi; US 4810734 1989 HCAPLUS
(31) Kishida; US 4546145 1985 HCAPLUS
(32) Laughlin; US 3929678 1975 HCAPLUS
(33) Libor; US 4600744 1986 HCAPLUS
(34) Lyons; US 4125411 1978
(35) Mardis; US 4434075 1984 HCAPLUS
(36) Maxfield; US 5385776 1995
(37) McKinley; US 4500670 1985 HCAPLUS
(38) Miyasaka; US 5391437 1995 HCAPLUS
(39) Mukamal; US 4400485 1983 HCAPLUS
(40) Okada; US 4739007 1988 HCAPLUS
(41) Okada; US 4894411 1990 HCAPLUS
(42) Osborn; US 4251576 1981 HCAPLUS
(43) Ravet; US 4842651 1989 HCAPLUS
(44) Rice; US 4789403 1988 HCAPLUS
(45) Rice; US 4798766 1989 HCAPLUS
(46) Simone; US 3912532 1975 HCAPLUS
(47) Sugahara; Journal of the Ceramic Society of Japan International Edition 1992, V100(4), P420
(48) Takahashi; US 3773708 1973 HCAPLUS
(49) Tateyama; US 5204078 1993 HCAPLUS
(50) Tokoh; US 5428094 1995 HCAPLUS
(51) Ure; US 3419460 1968
(52) Usuki; US 4889885 1989 HCAPLUS
(53) Weber; US 4431755 1984 HCAPLUS
(54) Yano; US 5164460 1992 HCAPLUS
(55) Yano; Polymer Preprints 1991, P65 HCAPLUS
(56) Yasue; US 5414042 1995 HCAPLUS

L86 ANSWER 14 OF 26 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1998:239501 HCAPLUS
DN 128:298471
ED Entered STN: 27 Apr 1998
TI Molding technique of powder precursors for sintered ceramics containing monomers and polymerization initiators
IN Nagano, Masanori; Takeshita, Masaaki; Kurita, Kiyohiko
PA Koransha K. K., Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
IC ICM C04B035-622
ICS B22F003-02; B22F003-10; C04B035-632
CC 57-2 (Ceramics)
Section cross-reference(s): 38
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 10101437	A2	19980421	JP 1996-277173	19960927 <--
PRAI JP 1996-277173		19960927 <--		

AB Compns. containing ceramic precursor powders, **vaporizable** liqs., monomers soluble in the **liqs.**, and initiators for **polymerization** of the monomers are subjected to polymerization in casts followed by removal of the liqs. by **vaporization**. Precursors for thick film ceramic materials with complicated shapes can be prepared by the above molding process in improved dimensional accuracy.
ST sintered ceramic material precursor molding process; powder monomer mixt polymg molding ceramic; **vaporizable** liq sol monomer ceramic precursor
IT Carbides
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(cemented; molding of powdered precursors for ceramics associated with polymerization of monomers in solvents followed by removal of the solvents by **vaporization**)
IT Ceramics
Molding of ceramics
Solvents
(molding of powdered precursors for ceramics associated with polymerization of monomers in solvents followed by removal of the solvents by **vaporization**)
IT **Clays**, processes
Feldspar-group minerals
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(molding of powdered precursors for ceramics associated with polymerization of monomers in solvents followed by removal of the solvents by **vaporization**)
IT 1344-28-1, Alumina, processes 7631-86-9, Silica, processes 11130-73-7, Tungsten carbide
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(molding of powdered precursors for ceramics associated with polymerization of monomers in solvents followed by removal of the solvents by **vaporization**)
IT 9038-46-4P, Poly(magnesium acrylate) 39475-71-3P, Poly(cobalt acrylate) 39475-77-9P, Poly(zinc acrylate)

RL: PEP (Physical, engineering or chemical process); PNU (Preparation, unclassified); REM (Removal or disposal); PREP (Preparation); PROC (Process)
(molding of powdered precursors for ceramics associated with polymerization of monomers in solvents followed by removal of the solvents by **vaporization**)

IT 50-81-7, L-Ascorbic acid, uses 7727-54-0, Ammonium persulfate
RL: CAT (Catalyst use); USES (Uses)
(polymerization initiators; molding of powdered precursors for ceramics associated with polymerization of monomers in solvents followed by removal of the solvents by **vaporization**)

IT **64-17-5, Ethanol**, uses 7732-18-5, Water, uses
RL: NUU (Other use, unclassified); USES (Uses)
(solvents; molding of powdered precursors for ceramics associated with polymerization of monomers in solvents followed by removal of the solvents by **vaporization**)

L86 ANSWER 15 OF 26 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2000:169521 HCAPLUS
DN 132:182111
ED Entered STN: 16 Mar 2000
TI Biodegradable and gas-permeable coatings for internal walls and their manufacture
IN Sun, Zhirong
PA Peop. Rep. China
SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 5 pp.
CODEN: CNXXEV
DT **Patent**
LA Chinese
IC ICM C09D131-04
ICS C09D133-08
CC 42-10 (Coatings, Inks, and Related Products)
Section cross-reference(s): 43, 58
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CN 1191235	A	19980826	CN 1998-104580	19980317 <--
	CN 1073610	B	20011024		
PRAI	CN 1998-104580		19980317 <--		

AB Title coatings comprise synthetic resin latices 50-650, pulp 10-70, aids 5-10, fillers 100-400, and **water** 400-800 parts with proper amts. of color pastes. A typical green coating comprised poly(vinyl acetate) latex 300, pulp 35, TiO2 80, talc 80, hydroxymethyl cellulose 2, Na polymethacrylate 0.8, **NaNO2** 3, AcOHgPh 1.0, Na hexametaphosphate 1.5, and **water** 600 kg with proper amount of a color paste.

ST biodegradable gas permeable coating internal wall; pulp synthetic resin biodegradable gas permeable coating

IT Polyvinyl acetals
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(formals; pulp-containing synthetic resin biodegradable and gas-permeable coatings for inner walls)

IT Cotton
Flax
Grass (Poaceae)
(pulp from; pulp-containing synthetic resin biodegradable and gas-permeable

coatings for inner walls)
IT Antifoaming agents
Antifreeze
Biodegradable materials
Cellulose pulp
Corrosion inhibitors
Dispersing agents
Emulsifying agents
Fillers
Foaming agents
Fungicides
Plasticizers
Thickening agents
(pulp-containing synthetic **resin** biodegradable and gas-permeable coatings for inner walls)
IT Kaolin, uses
Lime (chemical)
Mica-group minerals, uses
RL: MOA (Modifier or additive use); USES (Uses)
(pulp-containing synthetic resin biodegradable and gas-permeable coatings for inner walls)
IT Acrylic polymers, uses
Alkyd resins
Epoxy resins, uses
Nitrile rubber, uses
Phenolic resins, uses
Polyamides, uses
Styrene-butadiene rubber, uses
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(pulp-containing synthetic resin biodegradable and gas-permeable coatings for inner walls)
IT Synthetic fibers
RL: TEM (Technical or engineered material use); USES (Uses)
(pulp-containing synthetic resin biodegradable and gas-permeable coatings for inner walls)
IT Polyphosphoric acids
RL: MOA (Modifier or additive use); USES (Uses)
(sodium salts; pulp-containing synthetic resin biodegradable and gas-permeable coatings for inner walls)
IT Coating materials
(**water**-thinned; pulp-containing synthetic resin biodegradable and gas-permeable coatings for inner walls)
IT 9003-18-3
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(nitrile rubber, pulp-containing synthetic resin biodegradable and gas-permeable coatings for inner walls)
IT 62-38-4, Phenylmercuric acetate 131-52-2, Sodium pentachlorophenol 471-34-1, Calcium carbonate, uses 1345-05-7, Lithopone 7631-86-9, Silica, uses 7632-00-0, Sodium nitrite 9004-32-4, Carboxymethyl cellulose 13462-86-7, Barite 13463-67-7, Titania, uses 14807-96-6, Talc, uses 14808-60-7, Quartz, uses 37353-59-6, Hydroxymethyl cellulose 54193-36-1, Sodium polymethacrylate
RL: MOA (Modifier or additive use); USES (Uses)
(pulp-containing synthetic resin biodegradable and gas-permeable coatings for inner walls)
IT 9003-20-7, Poly(vinyl acetate)
RL: POF (Polymer in formulation); TEM (Technical or engineered material

use); USES (Uses)
(pulp-containing synthetic resin biodegradable and gas-permeable coatings for inner walls)
IT 9003-55-8
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(styrene-butadiene rubber, pulp-containing synthetic resin biodegradable and gas-permeable coatings for inner walls)

L86 ANSWER 16 OF 26 HCAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 1
AN 1998:297379 HCAPLUS
DN 129:5181
ED Entered STN: 21 May 1998
TI Characterization of epoxy-**clay** hybrid composite prepared by **emulsion polymerization**
AU Lee, Dong Choo; Jang, Lee Wook
CS Department of Polymer Science and Engineering, Inha University, Inchon, 402-751, S. Korea
SO Journal of Applied Polymer Science (1998), 68(12), 1997-2005
CODEN: JAPNAB; ISSN: 0021-8995
PB John Wiley & Sons, Inc.
DT Journal
LA English
CC 37-5 (Plastics Manufacture and Processing)
AB This article demonstrates the direct intercalation of an epoxy polymer in the interlayer of Na+-montmorillonite (MMT) by a step type of **polymerization** in an **aqueous emulsion** media. The synthesis and the results of structural and thermal characterizations for this hybrid composite are described. Equimolar quantities of bisphenol A and an epoxy prepolymer (n = 0.2) in an **emulsion** media were **polymerized** in the presence of Na+-MMT. X-ray diffraction (XRD) data obtained from the acetone-extracted products show that the basal spacing of the MMT is expanded from 0.96 to 1.64 nm. Thermal characterization for the postcured products by TGA and DSC gave evidence of enhanced thermal stabilities. SEM examination of the uncured products revealed that a disordered phase begins to appear with increasing polymer loading. However, the XRD profile supported that an overwhelming fraction of the **nanocomposite** contains intercalated **clay**. Also, the possibility of intercalation by the emulsion technique is proposed on the basis of the swelling characteristics of MMT in **aqueous** media and the sizes of micelles containing a monomer.
ST montmorillonite epoxy intercalation
IT Polymer morphology
(characterization of epoxy-**clay** hybrid composite prepared by **emulsion polymerization**)
IT Epoxy resins, properties
RL: PRP (Properties)
(characterization of epoxy-**clay** hybrid composite prepared by **emulsion polymerization**)
IT **Clays**, properties
RL: MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(montmorillonitic; characterization of epoxy-**clay** hybrid composite prepared by **emulsion polymerization**)
IT 39152-24-4, DGEBA-DICY copolymer
RL: PRP (Properties)
(characterization of epoxy-**clay** hybrid composite prepared by **emulsion polymerization**)
RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

(1) Burnside, S; Chem Mater 1995, V7, P1597 HCAPLUS
(2) Kojima, Y; J Polym Sci Part A 1993, V31, P983 HCAPLUS
(3) Komine, H; Can Geotech J 1994, V31, P478 HCAPLUS
(4) Komine, H; Can Geotech J 1996, V33, P11 HCAPLUS
(5) Lee, D; J Appl Polym Sci 1996, V61, P1117 HCAPLUS
(6) Messersmith, P; Chem Mater 1994, V6, P1719 HCAPLUS
(7) Odian, G; Principles of Polymerization, 3rd ed 1991
(8) Okada, A; Hybrid Organic-Inorganic Composites, ACS Symposium Series 585, Chap 6 1995, P55 HCAPLUS
(9) Wu, J; Chem Mater 1993, V5, P835 HCAPLUS

L86 ANSWER 17 OF 26 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1997:140287 HCAPLUS
DN 126:145274
ED Entered STN: 03 Mar 1997
TI An aqueous latex and **nanocomposite** containing a layered mineral intercalated with an **emulsion polymer**, their preparation and **polymer** blends containing them with reduced permeability to small molecules
IN Elspass, Chester W.; Kresge, Edward N.; Peiffer, Dennis G.; Hseih, Dong-Tsai; Chludzinski, James J.
PA Exxon Research and Engineering Co., USA
SO PCT Int. Appl., 14 pp.
CODEN: PIXXD2
DT **Patent**
LA English
IC ICM C08L007-02
ICS C08K003-34
CC 39-9 (Synthetic Elastomers and Natural Rubber)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9700910	A1	19970109	WO 1996-US7226	19960517 <--
	W: AU, BR, CA, CN, HU, JP, KP, MX, NO, PL, RU, SG				
	RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	CA 2221649	AA	19970109	CA 1996-2221649	19960517 <--
	AU 9657983	A1	19970122	AU 1996-57983	19960517 <--
	AU 705183	B2	19990520		
	EP 833863	A1	19980408	EP 1996-914704	19960517 <--
	R: BE, DE, DK, ES, FR, GB, IT, LU, NL				
	CN 1199413	A	19981118	CN 1996-194971	19960517 <--
	BR 9608659	A	19990518	BR 1996-8659	19960517 <--
	JP 2001518122	T2	20011009	JP 1997-503836	19960517 <--
	TW 419496	B	20010121	TW 1996-85107856	19960628 <--
	NO 9706007	A	19980220	NO 1997-6007	19971219 <--
PRAI	US 1995-494208	A	19950623 <--		
	WO 1996-US7226	W	19960517 <--		

AB Title **nanocomposite** containing a layered mineral intercalated with an **emulsion polymer**, useful in a tire liner, inner tubes, barriers, films and coatings, is prepared by **emulsion polymerization** of olefin or diene monomers in a **water** dispersion of a layered mineral containing an onium salt swelling agent, and further is blended with other polymers with improved reduced permeability to small mols. Thus, a solid **nanocomposite** 20 g, prepared by **emulsion polymerizing** isoprene and styrene in a montmorillonite **clay** slurry containing dodecyl tri-Me ammonium bromide at 23° for 20 h and 65° for 26 h and precipitating, was melt blended with a styrene-isoprene copolymer 20 g and crosslinked in the presence of stearic acid and zinc oxide to give a film (**clay**

content 26.3%) showing oxygen transmission 4138, compared with 12,340 for a sample without **clay**.

ST silicate layered polymer **nanocomposite** formation; **clay** olefin polymer **nanocomposite** reduced permeability; mineral layered intercalated **emulsion polymer** **nanocomposite**; isoprene styrene copolymer latex **nanocomposite** formation; montmorillonite onium salt **nanocomposite** formation; coating **clay** polymer **nanocomposite** reduced permeability; tire liner **clay** polymer **nanocomposite**

IT Synthetic rubber, preparation
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(acrylonitrile-styrene, **nanocomposite** with **clay**; formation of polymer **nanocomposite** by intercalating layered silicates with an **emulsion** olefin **polymers**)

IT Synthetic rubber, preparation
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(chloroprene-styrene, **nanocomposite** with **clay**; formation of polymer **nanocomposite** by intercalating layered silicates with an **emulsion** olefin **polymers**)

IT Latex
(**clay**-polymer **nanocomposite**; formation of polymer **nanocomposite** by intercalating layered silicates with an **emulsion** olefin **polymers**)

IT **Polymerization**
(**emulsion**; formation of **polymer** **nanocomposite** by intercalating layered silicates with an **emulsion** olefin **polymers**)

IT Coating materials
Tires
(formation of polymer **nanocomposite** by intercalating layered silicates with an **emulsion** olefin **polymers**)

IT Swelling agents
(hydrocarbyl onium salt; formation of polymer **nanocomposite** by intercalating layered silicates with an **emulsion** olefin **polymers**)

IT Silicates, uses
RL: MOA (Modifier or additive use); NUU (Other use, unclassified); USES (Uses)
(layered, **nanocomposite** with olefin polymer; formation of polymer **nanocomposite** by intercalating layered silicates with an **emulsion** olefin **polymers**)

IT Tires
(liners; formation of polymer **nanocomposite** by intercalating layered silicates with an **emulsion** olefin **polymers**)

IT Isoprene-styrene rubber
Polyolefins
Styrene-butadiene rubber, preparation
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(**nanocomposite** with **clay**; formation of polymer **nanocomposite** by intercalating layered silicates with an **emulsion** olefin **polymers**)

IT Smectite-group minerals

RL: MOA (Modifier or additive use); NUU (Other use, unclassified); USES (Uses)
(**nanocomposite** with olefin polymer; formation of polymer **nanocomposite** by intercalating layered silicates with an **emulsion** olefin **polymers**)

IT 25038-32-8P
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(isoprene-styrene rubber, **nanocomposite** with **clay**; formation of polymer **nanocomposite** by intercalating layered silicates with an **emulsion** olefin **polymers**)

IT 75835-87-9P, Acrylonitrile-p-methylstyrene copolymer 186612-83-9P
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(**nanocomposite** with **clay**; formation of polymer **nanocomposite** by intercalating layered silicates with an **emulsion** olefin **polymers**)

IT 33411-19-7P, Isoprene-p-methylstyrene copolymer 33520-88-6P, Butadiene-p-methylstyrene copolymer
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(**nanocomposite** with **clay**; formation of polymer **nanocomposite** by intercalating layered silicates with **emulsion** olefin **polymers**)

IT 1318-00-9, Vermiculite 1318-93-0, Montmorillonite, uses 1319-41-1, Saponite 12172-85-9, Beidellite 12173-47-6, Hectorite 12417-86-6, Stevensite
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(**nanocomposite** with olefin polymer; formation of polymer **nanocomposite** by intercalating layered silicates with **emulsion** olefin **polymers**)

IT 9003-54-7P, Acrylonitrile-styrene copolymer 25038-32-8P, Isoprene-styrene copolymer 26833-56-7P, Chloroprene-styrene copolymer
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(rubber, **nanocomposite** with **clay**; formation of polymer **nanocomposite** by intercalating layered silicates with **emulsion** olefin **polymers**)

IT 9003-55-8P
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(styrene-butadiene rubber, **nanocomposite** with **clay**; formation of polymer **nanocomposite** by intercalating layered silicates with an **emulsion** olefin **polymers**)

IT 1119-94-4, Dodecyl trimethyl ammonium bromide
RL: MOA (Modifier or additive use); USES (Uses)
(swelling agent; formation of polymer **nanocomposite** by intercalating layered silicates with **emulsion** olefin **polymers**)

L86 ANSWER 18 OF 26 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1999:734114 HCAPLUS
DN 131:310962

ED Entered STN: 19 Nov 1999
TI Preparation of polyamide and **clay nanometer** composite by polymerizing lactam monomer with **clay**
IN Qi, Zongneng; Li, Qiang; Zhao, Zhudi; Zhou, Yanzhu; Qiao, Fang
PA Chemical Inst., Chinese Academy of Sciences, Peop. Rep. China
SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 12 pp.
CODEN: CNXXEV
DT **Patent**
LA Chinese
IC ICM C08G069-00
ICS C08L077-00
CC 35-5 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 37
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CN 1138593	A	19961225	CN 1996-105362	19960605 <--
	CN 1055706	B	20000823		
PRAI	CN 1996-105362		19960605 <--		

AB The composite comprises polyamide monomer (sic) 100, **clay** 0.05-60, catalyst 0.01-20, dispersing medium 1-1200, proton donor 0.001-1.0, and additives 0.05-5 part (weight). The **clay** is aluminosilicate containing 85-93 % montmorillonite with particle size 200-400 mesh and cation exchange capacity 50-200 meq/100 g or 90-110 meq/100 g. The monomer is caprolactam, caprylolactam, lauryl lactam, and butyrolactam. The proton donor is H3PO4, HCl, H2SO4 or HOAc. The catalyst is 6-aminocaproic acid or aminolauric acid. The additives is hexanediamine or lauryl diamine. The dispersion medium is water, **ethanol**, propanol or chloroform. The additive is phosphoric acid salt functioning as a nucleating agent. Thus, a polyamide/**clay nanometer** composite was prepared by (1) dispersing a **clay** (cation exchange capacity 100 meq/100 g) 3 g in water 100 g at high speed stirring for 0.5 h and aging for 24 h to obtain liquid A, (2) stirring and heating a mixture of caprolactam 100 g, phosphoric acid 0.3 g and water 20 g at 80° to obtain liquid B, (3) adding liquid B dropwise to liquid A at 80° for 0.5 h, stripping water under vacuum at 135° till water content <0.5%, (4) charging 6-aminocaproic 13 g and hexanediamine 0.18 g, raising temperature to 250° and polymerizing for 6 h, and (5) crushing, washing and drying. Thus, the above **nanometer** composite had montmorillonite crystal d001 face distance >100Å, tensile strength 78 MPa, elongation 30%, tensile modulus 0.9 GPa, impact strength 67 kJ/m, and heat distortion temperature 140°.

ST polyamide montmorillonite **clay nanometer** composite prepn
IT Polymerization catalysts
(6-aminocaproic acid or aminolauric acid; preparation of polyamide and **clay nanometer** composite by polymerizing lactam monomer with **clay**)
IT Solvents
(dispersion medium, **ethanol**, propanol, chloroform; preparation of polyamide and **clay nanometer** composite by polymerizing lactam monomer with **clay**)
IT Composites
Crystal structure
Tensile strength
(preparation of polyamide and **clay nanometer** composite by polymerizing lactam monomer with **clay**)
IT **Clays**, uses
RL: MOA (Modifier or additive use); USES (Uses)

(preparation of polyamide and **clay nanometer** composite by polymerizing lactam monomer with **clay**)

IT Polyamides, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation of polyamide and **clay nanometer** composite by polymerizing lactam monomer with **clay**)

IT 60-32-2, 6-Aminocaproic acid 693-57-2
RL: CAT (Catalyst use); USES (Uses)
(catalyst; preparation of polyamide and **clay nanometer** composite by polymerizing lactam monomer with **clay** in presence of)

IT 124-09-4, Hexamethylenediamine, uses 2783-17-7, 1,12-Dodecanediamine
RL: MOA (Modifier or additive use); USES (Uses)
(in preparation of polyamide and **clay nanometer** composite by polymerizing lactam monomer with **clay**)

IT 64-19-7, Acetic acid, uses
RL: NUU (Other use, unclassified); USES (Uses)
(in preparation of polyamide and **clay nanometer** composite by polymerizing lactam monomer with **clay**)

IT 1318-93-0, Montmorillonite, uses
RL: MOA (Modifier or additive use); USES (Uses)
(preparation of polyamide and **clay nanometer** composite by polymerizing lactam monomer with **clay**)

IT **24968-97-6P**, Butyrolactam polymer **25038-54-4P**, Caprolactam homopolymer, preparation 25038-74-8P, Lauryl lactam homopolymer **25190-92-5P**, Caprylolactam polymer
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation of polyamide and **clay nanometer** composite by polymerizing lactam monomer with **clay**)

IT 7647-01-0, Hydrochloric acid, uses 7664-38-2, Phosphoric acid, uses 7664-93-9, Sulfuric acid, uses
RL: NUU (Other use, unclassified); USES (Uses)
(preparation of polyamide and **clay nanometer** composite by polymerizing lactam monomer with **clay** in presence of)

IT **64-17-5**, **Ethanol**, uses 67-66-3, Chloroform, uses 62309-51-7, Propanol
RL: NUU (Other use, unclassified); USES (Uses)
(solvent; in preparation of polyamide and **clay nanometer** composite by polymerizing lactam monomer with **clay**)

L86 ANSWER 19 OF 26 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1996:194845 HCAPLUS
DN 124:234971
ED Entered STN: 05 Apr 1996
TI Anticorrosive acrylic styrene **resin emulsion** base paints
IN Li, Junhua; Wei, Fuying
PA Xuzhou Special Paint Chemical Factory, Peop. Rep. China
SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 11 pp.
CODEN: CNXXEV
DT **Patent**
LA Chinese
IC ICM C09D125-08
ICS C09D005-08
CC 42-7 (Coatings, Inks, and Related Products)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CN 1110703	A	19951025	CN 1994-107354	19940708 <--
PRAI	CN 1994-107354		19940708 <--		

AB Title paints comprise title emulsions 250-280, Na hexametaphosphate 33-47, Fe oxide red 95-115, Zn Cr yellow 37-48, Zn phosphate 12-25, talc 48-70, benzoguanamine dichromate 3-7, organic **clays** 7-15, NH3 **water** 3-7, Na polyacrylate 8-15, acrylate ester **resin emulsions** 14-25, **NaNO2** 1, Me N-(2-benzimidazole)carbamate 1-4, Bu3PO4 17-28, propylene glycol 6-14, diacetone **alc.** 3-8, and **water** 150-180 parts.

ST acrylic styrene resin anticorrosive base paint

IT Acrylic polymers, uses
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(acrylic styrene **resin**-based **aqueous emulsions** for anticorrosive base paints)

IT **Clays**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(organic; acrylic styrene **resin**-based **aqueous emulsions** for anticorrosive base paints)

IT Coating materials
(anticorrosive, acrylic styrene **resin**-based **aqueous emulsions** for anticorrosive base paints)

IT Polyphosphoric acids
RL: MOA (Modifier or additive use); USES (Uses)
(sodium salts, acrylic styrene **resin**-based **aqueous emulsions** for anticorrosive base paints)

IT 57-55-6, Propylene glycol, uses 123-42-2, Diacetone **alcohol** 126-73-8, Tributyl phosphate, uses 1309-37-1, Iron oxide red, uses 1336-21-6, Ammonia **water** 7632-00-0, Sodium nitrite 7779-90-0, Zinc phosphate 9003-04-7, Sodium polyacrylate 10605-21-7 13530-65-9 14807-96-6, Talc, uses 33418-40-5
RL: MOA (Modifier or additive use); USES (Uses)
(acrylic styrene **resin**-based **aqueous emulsions** for anticorrosive base paints)

L86 ANSWER 20 OF 26 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1996:167652 HCAPLUS
DN 124:205166
ED Entered STN: 22 Mar 1996
TI Aqueous inorganic anticorrosive coatings
IN Jin, Qiang
PA Peop. Rep. China
SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 5 pp.
CODEN: CNXXEV
DT **Patent**
LA Chinese
IC ICM C09D001-00
ICS C09D005-08
CC 42-10 (Coatings, Inks, and Related Products)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CN 1109080	A	19950927	CN 1994-110127	19940321 <--
PRAI	CN 1994-110127		19940321 <--		

AB Title coatings, with good acid, alkali, heat, and **water** resistance, comprise anticorrosive inorg. compds. (selected from talc, Fe yellow, graphite, Cr2O3, MgCO3, TiO2, SnO2, and FeO) 10-50, antirust inorg. compds. (selected from ZnCrO4, Na2CO3, ZnO, and **NaNO2**) 5-25, fire retardants (Fe2O3, SiO2, Al2O3, MgO, ZrO2, and **clay**) 10-30, diluents (e.g., acrylic **resin emulsions**) 20-50, and **water** 3-15%.

ST anticorrosion **aq** inorg oxide coating; acrylic diluent **aq** inorg coating

IT Acrylic polymers, uses
Clays, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(acrylic diluent-containing **aqueous** inorg. oxide/salt coatings with anticorrosion)

IT Coating materials
(anticorrosive, acrylic diluent-containing **aqueous** inorg. oxide/salt compns.)

IT 497-19-8, Sodium carbonate, uses 546-93-0, Magnesium carbonate 1308-38-9, Chromium oxide (Cr2O3), uses 1309-37-1, Ferric oxide, uses 1309-48-4, Magnesium oxide, uses 1314-13-2, Zinc oxide, uses 1314-23-4, Zirconia, uses 1344-28-1, Alumina, uses 1345-25-1, Ferrous oxide, uses 7631-86-9, Silica, uses 7632-00-0, Sodium nitrite 7782-42-5, Graphite, uses 9003-01-4, Polyacrylic acid 13463-67-7, Titania, uses 13530-65-9, Zinc chromate 14807-96-6, Talc, uses 18282-10-5, Stannic oxide 51274-00-1, Iron yellow
RL: TEM (Technical or engineered material use); USES (Uses)
(acrylic diluent-containing **aqueous** inorg. oxide/salt coatings with anticorrosion)

L86 ANSWER 21 OF 26 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1994:136403 HCAPLUS
DN 120:136403
ED Entered STN: 19 Mar 1994
TI polymer **nanocomposites** and their manufacture by **melt** processing of a **polymer** and an exfoliated layered material derivatized with a reactive organosilane
IN Maxfield, MacRae; Christiani, Brian R.
PA Allied-Signal, Inc., USA
SO PCT Int. Appl., 50 pp.
CODEN: PIXXD2
DT **Patent**
LA English
IC ICM C08K007-00
ICA C08K003-34; C08K009-06
CC 38-2 (Plastics Fabrication and Uses)
Section cross-reference(s): 37
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9311190	A1	19930610	WO 1992-US10098	19921123 <--
	W: JP				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, SE				
PRAI	US 1991-798440		19911126 <--		

AB The title composites, having improved yield strength in the presence of polar **solvents**, and enhanced heat resistance and impact strength, are manufactured by forming a flowable mixture comprising a **melt**-processable **polymer** and a swellable and polymer-compatible intercalated layered material having reactive organosilane residue covalently bonded to the layered material, and subjecting the mixture to shear at a shear rate sufficient to dissociate all or a portion of the layers to form platelet particles (average thickness <50 Å unit) and to uniformly disperse the platelet particles in the polymer to form the composite. Nylon 6 **nanocomposites** with **clay**-caprolactam silane (isocyanatopropyltriethoxysilane-caprolactam reaction product) showed aged (14 days in **MeOH** at 20°) tensile modulus 710 MPa and aged yield strength 30 MPa,

compared with 500 and 23, resp., for nylon 6 alone.
ST polymer **nanocomposite clay** mineral silane; polyamide **nanocomposite clay** mineral silane; heat resistance polyamide **nanocomposite** silane; silica **nanocomposite** polymer silane manuf
IT Plastics, reinforced
RL: USES (Uses)
(composites with platelet particles derivatized with organosilanes, manufacture of)
IT Smectite-group minerals
RL: USES (Uses)
(derivatized with organosilanes, composites with **melt**-processable **polymers**)
IT Polyamides, preparation
Polyesters, preparation
RL: PREP (Preparation)
(**nanocomposite** with platelet particles derivatized with reactive silanes, manufacture of heat-resistant)
IT Coupling agents
(organosilanes, for platelet particles, in **nanocomposite** manufacture)
IT Alkenes, polymers
RL: USES (Uses)
(halo, polymers, **nanocomposite** with platelet particles derivatized with reactive silanes, manufacture of heat-resistant)
IT Minerals
RL: USES (Uses)
(phyllosilicate, derivatized with organosilanes, composites with **melt**-processable **polymers**, manufacture of)
IT Alkenes, polymers
Vinyl compounds, polymers
RL: USES (Uses)
(polymers, **nanocomposite** with platelet particles derivatized with reactive silanes, manufacture of heat-resistant)
IT 105-60-2DP, Caprolactam, reaction products with alkoxysilane 24801-88-5DP, reaction products with caprolactam 68128-25-6DP, reaction products with **clays**
RL: PREP (Preparation)
(montmorillonites derivatized by, composites with **melt**-processable **polymers**, manufacture of)
IT **25038-54-4**, Nylon 6, uses
RL: USES (Uses)
(**nanocomposite** with platelet particles derivatized with reactive silanes, manufacture of heat-resistant)
IT 1318-93-0DP, Montmorillonite ((Al1.33-1.67Mg0.33-0.67)(Ca0-1Na0-1)0.33Si4(OH)2O10.xH2O), reaction products with polyamide-reactive silanes, preparation
RL: PREP (Preparation)
(**nanocomposites** with **melt**-processable **polymers**, manufacture of)

L86 ANSWER 22 OF 26 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1992:653107 HCAPLUS
DN 117:253107
ED Entered STN: 26 Dec 1992
TI Automatic sealants for tires of various vehicles
IN Wang, Haifeng; Zhong, Xian; Wu, Shaolin; et al.
PA Peop. Rep. China
SO Faming Zhuanli Shenqing Gongkai Shuomingshu, 5 pp.

CODEN: CNXXEV
DT **Patent**
LA Chinese
IC ICM C09K003-12
ICS C09J009-00
CC 39-13 (Synthetic Elastomers and Natural Rubber)
Section cross-reference(s): 42
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CN 1062363	A	19920701	CN 1990-109738	19901211 <--
PRAI	CN 1990-109738		19901211 <--		

AB Title anticorrosive sealants comprise natural or synthetic polymer binders and additives such as reinforcers, antifreezing agents, anticorrosive agents, and stabilizers. Thus, a composition comprised SBR 100, poly(vinyl alc.) 6, glycerol 10, and **NaNO2** 0.2 part filling 450 g the composition into a truck tire, pumping gas to 4 kg/cm, piercing holes with a nail, turning the tire to allow the composition to seal the holes resulted a tire without any gas leakage under 5-ton load for 515 km.

ST tire inner automatic sealant; SBR automatic sealant bicycle tire
IT Antifreeze substances
Antioxidants
Corrosion inhibitors
Dispersing agents
Heat stabilizers
Acrylic polymers, uses
Amines, uses
Asbestos
Bentonite, uses
Carbon black, uses
Chromates
Epoxy resins, uses
Kieselguhr
Mica-group minerals, uses
Molybdates
Nitrites
Phenolic resins, uses
Phosphates, uses
Proteins, uses
Rubber, butadiene-styrene, uses
Rubber, natural, uses
Rubber, synthetic
Silicates, uses
Siloxanes and Silicones, uses
Tungstates
Urethane polymers, uses
Vinyl acetal polymers
RL: USES (Uses)
(automatic sealants containing, for inner tires)
IT Sealing compositions
(automatic, with natural or synthetic polymer binders, for inner tires)
IT Tires
(inner automatic sealants for, with natural or synthetic polymer binders)
IT Resin acids and Rosin acids
RL: USES (Uses)
(salts, sodium, automatic sealants containing, for inner tires)
IT Polyphosphoric acids
Sulfonic acids, compounds

RL: USES (Uses)
(sodium salts, automatic sealants containing, for tires)
IT 50-70-4, Sorbitol, uses 56-81-5, Glycerol, uses 57-55-6, 1,2-Propanediol, uses **64-17-5, Ethanol**, uses **67-56-1, Methanol**, uses 67-68-5, DMSO, uses 107-21-1, Ethylene glycol, uses 109-86-4, Ethylene glycol methyl ether 109-89-7, Diethylamine, uses 110-80-5, Ethylene glycol ethyl ether 111-46-6, Diethylene glycol, uses 111-76-2, Ethylene glycol butyl ether 111-96-6, Diglyme 112-07-2, Ethylene glycol butyl ether acetate 121-79-9 123-42-2, Diacetone alcohol 151-21-3, Sodium laurylsulfate, uses 471-34-1, Calcium carbonate, uses 9002-89-5, Poly(vinyl alcohol) 9003-20-7, Poly(vinyl acetate) 9005-25-8, Starch, uses 14807-96-6, Talc, uses 25155-30-0 26762-52-7, Hexane diol 39881-83-9
RL: USES (Uses)
(automatic sealants containing, for tires)
IT **9003-55-8**
RL: USES (Uses)
(rubber, automatic sealants containing, for inner tires)

L86 ANSWER 23 OF 26 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1988:57395 HCAPLUS
DN 108:57395
ED Entered STN: 20 Feb 1988
TI Pressure molding process using salt cores and compositions for making cores
IN Foreman, Robert W.; Ives, Michael T.
PA Park Chemical Co., USA
SO Can., 22 pp.
CODEN: CAXXA4
DT **Patent**
LA English
IC ICM B29C033-38
ICS B22C001-00
CC 38-2 (Plastics Fabrication and Uses)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	CA 1226106	A1	19870901	CA 1984-450682	19840328 <--
	EP 138985	A1	19850502	EP 1984-901655	19840327 <--
	R: AT, BE, CH, DE, FR, GB, LI, LU, NL, SE				
	JP 60500906	T2	19850620	JP 1984-501600	19840327 <--
PRAI	US 1983-477580		19830328 <--		
	WO 1984-US452		19840327 <--		

AB The title process comprises melting ≥1 low m.p., **H2O**-soluble salt, forming a mold core from the molten salt and solidifying, coating the core with a hydrophobic lubricant, and pressure molding around the core. A 55:27:18 sand-**NaNO3**-KNO3 mixture was mixed at 430°F, formed into a core, used to mold a phenolic resin, then removed from the molding by melting.
ST core mold low melting salt; phenolic resin molding salt core; nitrate potassium sodium core
IT Molding apparatus for **plastics** and rubbers
(low **melting** salt mixts. as removal cores for)
IT Carbon fibers, uses and miscellaneous
Glass fibers, uses and miscellaneous
Mica-group minerals, uses and miscellaneous
RL: USES (Uses)
(low melting salt mold cores containing)
IT Phenolic resins, uses and miscellaneous

Polyesters, uses and miscellaneous
RL: USES (Uses)
(molding of, low melting salt core molds for)
IT 7440-44-0
RL: USES (Uses)
(carbon fibers, low melting salt mold cores containing)
IT 7631-99-4, Sodium nitrate, uses and miscellaneous 7632-00-0, Sodium nitrite 7757-79-1, Potassium nitrate, uses and miscellaneous
RL: USES (Uses)
(mold cores containing, for pressure molding of plastics)

L86 ANSWER 24 OF 26 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1981:605567 HCAPLUS
DN 95:205567
ED Entered STN: 12 May 1984
TI **Water**-thinned coating compositions
PA Shell Sekiyu K. K., Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT **Patent**
LA Japanese
IC C09D001-00
CC 42-10 (Coatings, Inks, and Related Products)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 56095958	A2	19810803	JP 1979-172055	19791229 <--
PRAI	JP 1979-172055		19791229 <--		

AB **Water**-thinned asphalt-acrylic compns. giving anticorrosive coatings with good weather resistance contain **clay** minerals as dispersants. Thus, a 56% 1:1 Bu acrylate-styrene **copolymer** [25767-47-9] **emulsion** 100, silica sand (diameter 40 μ) 50, and **NaNO2** 1.75 parts are mixed with 200 parts 55% straight asphalt emulsion (dispersant bentonite) for 3 min and then with 1.05-parts acrylic thickener and 0.7 part defoamer to give a composition with good storability, giving an automobile undercoating with good workability and better resistance to corrosion and weather than without the acrylic emulsion.
ST acrylic latex coating anticorrosive; asphalt emulsion coating anticorrosive; corrosion resistance latex coating; styrene copolymer latex coating
IT Asphalt
RL: USES (Uses)
(latex coatings, containing acrylic polymers, anticorrosive)
IT Coating materials
(anticorrosive, acrylate **polymer**-asphalt **emulsions**, weather-resistant)
IT 25767-47-9
RL: USES (Uses)
(latex coatings, anticorrosive)

L86 ANSWER 25 OF 26 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1966:10584 HCAPLUS
DN 64:10584
OREF 64:1870b-d
ED Entered STN: 22 Apr 2001
TI New types of plastic lubricants with nondetergent thickeners
AU Makeeva, E. D.; Blyudov, A. P.; Ostrovskaya, T. K.; Veisman, S. G.; Nikolaeva, I. N.; Ataeva, O. V.; Kobal, G. N.; Makhnenko, G. Kh.
SO Teoriya Smazochnogo Deistviya i Novye Materialy (1965) 138-40

CODEN: 15GCAO
DT Journal
LA Russian
CC 27 (Petroleum and Petroleum Derivatives)
AB Three types of lubricants were studied based on bentonite **clays**, silica gel, and Na terephthalamidate. Benton, based on bentonite **clay**, modified by dimethylalkylbenzylammonium chloride C16-18 alkyl has hydrophobic and oleophilic properties, and forms stable colloidal systems with mineral and synthetic oils. The thickening ability of benton increases upon addition of highly polar compds. of low mol. weight (acetone, **MeOH**). **NaNO2** (0.5%) improves the anticorrosive properties of benton. The addition of silica gel to mineral oils and synthetic liquids increases the colloidal and mech. stability and chemical inactivity. Several surface-active agents are added (**BuOH**, quaternary ammonium compds.). Mineral oil thickeners with butoxy-silica gel are used in textile industry to lubricate spindles at -60°. Ammonium salt additives are used as antifriction agents in valves. Organic F compds. thickened with trimethylsilyl derivs. of silica gel are used in acid industries. In the 3rd group, mineral oils and organic Si compds. thickened with Na N-octadecylterephthalamidate are used. These oils are chemical and mech. stable and are resistant to atmospheric corrosion.
IT Plasticizers
(2-methylpropene polymers (oktol) as, in asbestos-bitumen-crumb rubber-ozoceritevat fatty acid composition)
IT Lubricants
(greases, thickened by bentones, silica gel and Na terephthalamidate)
IT Rubber
(mixture of crumb, with asbestos, bitumen, ozocerite and vat fatty acid with isobutylene polymer as plasticizer)
IT Asbestos
(mixts. with bitumen, crumb rubber, ozocerite and vat fatty acid with isobutylene polymer as plasticizer)
IT Bitumens
(plasticizers containing)
IT Ozocerite
(plasticizers from)
IT Bentones
(lubricating grease thickened by)
IT **9003-27-4**, Oktol
(as plasticizer in asbestos-bitumen-crumb rubber-ozocerite-vat fatty acid mixture)
IT 7631-86-9, Silica
(configuration of, lubricating grease thickened by)
IT 5994-45-6, Terephthalamic acid, N-octadecyl-, sodium salt
(lubricating grease thickened by, corrosion inhibitor for)
IT 115-11-7, Propene, 2-methyl- (isobutylene)
(polymers (octol) as plasticizer in asbestosbitumen-crumb rubber-ozocerite-vat fatty acid mixture)

L86 ANSWER 26 OF 26 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 1973-60979U [41] WPIX
TI Pigments resistant to acid and alkali - based on condensation prodt of dimethylaniline, aniline and formaldehyde.
DC A21 E21
PA (LVO-N) LVOV POLYTECHNIC
CYC 1
PI SU 368285 A (197341)*
PRAI **SU 1971-1629154 19710302**
IC C09B039-00; C09C001-42

AB SU 368285 A UPAB: 19930831
Light pigments are prepared using a dimethylaniline (I): aniline (II) ratio of 1:1-1:2. The anilinedimethylanilineformaldehyde **resin** is obtd. by the simultaneous condensation of (I) and (II) (in their HCl salt form) with HCHO. The **resin** may be reacted with activated bentonite, kaolin and other mineral **clays**. In an example, a mixture of 3.1 p.b.w. (II), 1.55 p.b.w. (I), 50 p.b.w. water, 4.6 p.b.w. concentrate HCl and 4 p.b.w. 40% formalin is boiled for 4 hrs., after which the prepared solution is added to an aqueous suspension of 100 p.b.w. bentonite **clay** in 700 p.b.w. water with 30 mins. stirring. Concentrate HCl (3 p.b.w.) is added to the mixture followed by diazotisation with 1 p.b.w. **NaNO2** at 0-5 degrees C. and coupling with an alkaline solution of 2.3 p.b.w. beta-naphthol to give a red pigment which is not washed out by 7% boiling alkali solution, **acetone** or alcohol.
FS CPI
FA AB
MC CPI: A05-B; A08-E02; A08-E04; A08-R06; A08-R08; A09-A02; A10-E; E21-C10; E21-C15; E21-C16; E31-P

=> => D QUE
L62 59703 SEA FILE=WPIX ABB=ON CLAY# OR MICA OR HYDROTALCITE#
L63 25815 SEA FILE=WPIX ABB=ON L62 AND (SOLVENT# OR H2O OR WATER OR ALC OR ALCOHOL# OR KETONE# OR MEOH OR METHANOL OR ETHANOL OR ETOH OR C2H4OH)
L87 27522 SEA L63 AND (POLYMER? OR COPOLYMER? OR PLASTIC? OR RESIN?)
L88 820 SEA L87 AND NANO?
L89 2 SEA L88 AND VAPORI?
L90 168 SEA L88 AND EXFOL?
L91 66 SEA L90 AND (MELT? OR MOLTEN? OR EMULSI?)
L92 68 SEA L89 OR L91
L93 55 DUP REM L92 (13 DUPLICATES REMOVED)
L94 28 SEA L93 AND P/DT
L95 12 SEA L94 AND (1907-1998)/AY,PRY
L96 27 SEA L93 NOT L94
L97 1 SEA L96 NOT (1999-2004)/PY
L99 13 SEA L95 OR L97

=> S (L86 OR L99) NOT L86
L100 9 (L86 OR L99) NOT L86

=> D L100 ALL 1-9

L100 ANSWER 1 OF 9 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2000:351584 HCAPLUS
DN 132:348496
ED Entered STN: 26 May 2000
TI Polybenzoxazine **nanocomposites** of **clay** and their manufacture
IN Ishida, Hatsuo
PA Edison Polymer Innovation Corporation, USA
SO PCT Int. Appl., 42 pp.
CODEN: PIXXD2
DT **Patent**
LA English
IC ICM C08K003-34
CC 37-6 (Plastics Manufacture and Processing)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000029474	A1	20000525	WO 1999-US27163	19991116 <--
	W: CA, JP				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	US 6323270	B1	20011127	US 1999-442200	19991116 <--
PRAI	US 1998-108598P	P	19981116 <--		

AB A **nanocomposite** comprises **clay** and a benzoxazine monomer, oligomer, and/or **polymer**. The presence of the benzoxazine monomer, oligomer, and/or **polymer** in the **clay** results in an .gtorsim.5% increase in the spacing between the platelets of the **clay**. The presence of the benzoxazine monomer, oligomer, and/or **polymer** in the **clay** results in .gtorsim.5% of the **clay** being **exfoliated**. Thus, bis(3,4-dihydro-2H-3-phenyl-1,3-benzoxazinyl)isopropane **polymer** and **clay** were mixed 3 days in CCl3/**H2O**, dried, cured at 120-149° 30 min, 150-174° 30 min, and 175-200° for 2 h to give **exfoliated** structures.

ST **clay** polybenzoxazine **nanocomposite**

IT **Polymers**, preparation
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PREP (Preparation); USES (Uses)
(benzoxazine-based; polybenzoxazine/**clay** **nanocomposite** formation in solution and the **melt**)

IT Bentonite, uses
RL: MOA (Modifier or additive use); USES (Uses)
(for investigating **nanocomposite** formation/mechanism with **clay** in the **melt**)

IT **Nanocomposites**
(polybenzoxazine/**clay** **nanocomposite** formation in solution and the **melt**)

IT **Clays**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(polybenzoxazine/**clay** **nanocomposite** formation in solution and the **melt**)

IT 1318-93-0, Montmorillonite, uses 12068-50-7, Halloysite 12173-60-3, Illite 12174-11-7, Attapulgite
RL: MOA (Modifier or additive use); USES (Uses)
(for investigating **nanocomposite** formation/mechanism with **clay** in the **melt**)

IT 102-05-6 7470-08-8
RL: PRP (Properties)
(model compound; for investigating **nanocomposite** formation/mechanism with **clay** in the **melt**)

IT 154505-72-3P
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PREP (Preparation); USES (Uses)
(preparation and **nanocomposite** characterization by x-ray diffraction; polybenzoxazine/**clay** **nanocomposite** formation in solution and the **melt**)

RE.CNT 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Beall; US 5830528 A 1998 HCAPLUS
(2) Maxfield; US 5514734 A 1996 HCAPLUS

L100 ANSWER 2 OF 9 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1995:826013 HCAPLUS

DN 123:230538

ED Entered STN: 30 Sep 1995
TI **Nanocomposition** of poly(phenylenevinylene), poly(phenylene sulfide), and poly(phenoxyphenylene sulfide) with **clay** and MoO3
AU Oriakhi, Christopher O.; Lerner, Michael M.
CS Dep. Chem. and Center Advanced Materials Res., Oregon State Univ., Corvallis, OR, 97331-4003, USA
SO Proceedings - Electrochemical Society (1995), 95-8(Proceedings of the Symposium on Nanstructured Materials in Electrochemistry, 1995), 154-64
CODEN: PESODO; ISSN: 0161-6374
PB Electrochemical Society
DT Journal
LA English
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 36, 37
AB The prepns. of some new **nanocomposites** containing conjugated **polymer** by various routes are described. The insertion of a **water** soluble poly(phenylenevinylene) (PPV) precursor into the interlayer space of sodium montmorillonite followed by in situ chemical conversion affords a PPV-**clay nanocomposite** at ambient temperature An organoclay **nanocomposite** with polyphenylene sulfide (PPS) is prepared by the **melt** intercalation process. **Nanocompn.** of poly(phenoxyphenylene sulfide) (PPPS) with MoO3 and **clay** is achieved by the latex-colloid interaction method and the conventional **exfoliation**/adsorption technique. The products obtained are characterized by X-ray powder diffraction, FTIR and thermal measurement.
ST **nanocomposite polymer clay** molybdenum oxide; polyphenylenevinylene **clay** molybdenum oxide **nanocomposite**; polythiophenylene **clay** molybdenum oxide **nanocomposite**; polyphenoxythiophenylene **clay** molybdenum oxide **nanocomposite**; conjugated **polymer clay** molybdenum oxide **nanocomposite**
IT Polythiophenylenes
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PROC (Process); USES (Uses)
(fabrication and characteristics of **nanocomposites** of conjugated **polymers** with **clay** and molybdenum oxide)
IT **Clays**, uses
RL: MOA (Modifier or additive use); USES (Uses)
(montmorillonitic, fabrication and characteristics of **nanocomposites** of poly(phenylenevinylene), poly(phenylene sulfide), and poly(phenoxyphenylene sulfide) with **clay** and molybdenum oxide)
IT Polythiophenylenes
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PROC (Process); USES (Uses)
(polyether-, fabrication and characteristics of **nanocomposites** of conjugated **polymers** with **clay** and molybdenum oxide)
IT Poly(arylenealkenylenes)
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PROC (Process); USES (Uses)
(polyphenylenevinylenes, fabrication and characteristics of **nanocomposites** of conjugated **polymers** with **clay** and molybdenum oxide)
IT Polyethers, uses
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PROC (Process); USES (Uses)
(polythiophenylene-, fabrication and characteristics of

nanocomposites of conjugated **polymers** with **clay** and molybdenum oxide)

IT 1313-27-5, Molybdenum oxide (MoO3), uses
RL: MOA (Modifier or additive use); USES (Uses)
(fabrication and characteristics of **nanocomposites** of conjugated **polymers** with **clay** and molybdenum oxide)

IT 25212-74-2, Poly(phenylene sulfide) 26009-24-5, Poly(p-phenylenevinylene) 26025-98-9, Poly[(p-phenoxyphenyl) sulfide] 109230-33-3D, thermolyzed
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); PROC (Process); USES (Uses)
(fabrication and characteristics of **nanocomposites** of conjugated **polymers** with **clay** and molybdenum oxide)

IT 1318-93-0, Sodium montmorillonite, uses
RL: MOA (Modifier or additive use); USES (Uses)
(fabrication and characteristics of **nanocomposites** of poly(phenylenevinylene), poly(phenylene sulfide), and poly(phenoxyphenylene sulfide) with **clay** and molybdenum oxide)

L100 ANSWER 3 OF 9 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2002-680657 [73] WPIX
CR 2000-423389 [36]; 2000-423390 [36]
DNN N2002-537168 DNC C2002-192040
TI Intercalate for preparing **polymer/clay** **nanocomposite**, comprises layered smectite **clays** that differ from each other in any one of platelet particle size, cation exchange capacity, color, geographic location and selected intercalant.
DC A23 A25 A92 E19 P73
IN BARBEE, R B; GILMER, J W; LAN, T; MATAYABAS, J C; PSIHOGIOS, V
PA (AMCO-N) AMCOL INT CORP
CYC 1
PI US 6391449 B1 20020521 (200273)* 12 B32B015-02
ADT US 6391449 B1 **Provisional US 1998-111074P 19981207**, US 1999-452821 19991201
PRAI **US 1998-111074P 19981207**; US 1999-452821 19991201
IC ICM B32B015-02
ICS C08K011-00
AB US 6391449 B UPAB: 20021113
NOVELTY - Intercalate comprises a mixture of two swellable layered smectite **clays** intercalated with a **melt**-processable **polymer**. The two **clays** differ from each other in any one of platelet particle size, cation exchange capacity, color, geographic location and intercalant.

The intercalate is selected from an organic cation salt, monomer, **polymer**, metal, and organometallic compounds.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for the following:

(1) preparation of intercalate; and

(2) method of making a disordered mixture of smectite **clay**, comprises:

(i) dispensing two different swellable smectite **clays** in a liquid carrier comprising **water** and/or an organic **solvent**;

(ii) intimately mixing the **clays** in the carrier to **exfoliate** the **clays**; and

(iii) removing the carrier to allow the **exfoliated** **clays** to collapse into new tactoids such as platelets from one

clay are inter-exchanged with platelets of the other **clay**

USE - Intercalate for preparing **polymer/clay nanocomposite**, that is used for making film, bottles and containers for protecting consumable products e.g. foodstuffs, soft drinks and medicines and also for forming sheet, pipes, tubes, profiles, molded articles, preforms, stretch blow molded films and containers, injection blow molded containers, extrusion blow molded films and containers.

ADVANTAGE - Enables to prepare **polymer/clay nanocomposite** with sufficient **exfoliation** for improved properties. Reduces the amount of material needed to generate a specific barrier level in the end application, by using a layered **clay** mixture. Obtains improvement in gas permeability. Provides the **nanocomposite** with improved barrier.

Dwg.0/0

FS CPI GMPI

FA AB; GI; DCN

MC CPI: A08-R06B; A12-P01; E05-G03A; E10-A22; E31-P02B

L100 ANSWER 4 OF 9 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 2000-451819 [39] WPIX

CR 2000-431285 [37]; 2000-442148 [38]; 2001-191284 [19]

DNC C2000-137572

TI **Nanocomposite**, for e.g. packaging, comprises amorphous matrix polyamide and layered **clay**.

DC A23 A60 A92 B07 E11 E16 E19 F01

IN CONNELL, G W; GILMER, J W; LAN, T; MATAYABAS, J C; PSIHOGIOS, V; TURNER, S R; BAGRODIA, S; BARBEE, R B; BERNARD, L G; OWENS, J T

PA (EACH) EASTMAN CHEM CO; (AMCO-N) AMCOL INT CORP; (UYSC-N) UNIV SOUTH CAROLINA

CYC 26

PI	WO 2000034372	A1 20000615 (200039)* EN	58		C08K003-34
	RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE				
	W: AU BR CA CN JP MX				
	AU 2000020446	A 20000626 (200045)			
	EP 1144494	A1 20011017 (200169) EN			C08K003-34
	R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE				
	BR 9916040	A 20020115 (200214)			C08K003-34
	US 6376591	B1 20020423 (200232)			C08K003-34
	US 6384121	B1 20020507 (200235)			C08K003-34
	US 2002137834	A1 20020926 (200265)			C08K003-34
	JP 2002531663	W 20020924 (200278)	52		C08L077-00
	US 2003013796	A1 20030116 (200308)			C08K003-34
	US 6548587	B1 20030415 (200329)			C08K003-34
	AU 758550	B 20030327 (200330)			C08K003-34
	US 6552114	B2 20030422 (200330)			C08K003-34
	MX 2001005693	A1 20020501 (200368)			C08K003-34

ADT WO 2000034372 A1 WO 1999-US28981 19991207; AU 2000020446 A AU 2000-20446 19991207; EP 1144494 A1 EP 1999-964141 19991207, WO 1999-US28981 19991207; BR 9916040 A BR 1999-16040 19991207, WO 1999-US28981 19991207; US 6376591 B1 **Provisional US 1998-111284P 19981207**, US 1999-452511 19991201; US 6384121 B1 **Provisional US 1998-111284P 19981207**, US 1999-452827 19991201; US 2002137834 A1 **Provisional US 1998-111284P 19981207**, Cont of US 1999-452827 19991201, US 2002-72759 20020208; JP 2002531663 W WO 1999-US28981 19991207, JP 2000-586813 19991207; US 2003013796 A1 **Provisional US 1998-111284P 19981207**, Cont of US 1999-452826 19991201, US 2002-144427 20020513; US 6548587 B1 **Provisional US 1998-111202P 19981207**, **Provisional US 1998-111284P 19981207**, Provisional US 1999-143352P 19990712, CIP of

US 1999-354205 19990715, CIP of US 1999-452826 19991201, Provisional US 2000-210064P 20000607, US 2000-593905 20000614; AU 758550 B AU 2000-20446 19991207; US 6552114 B2 **Provisional US 1998-111284P 19981207**, Cont of US 1999-452826 19991201, US 2002-144427 20020513; MX 2001005693 A1 WO 1999-US28981 19991207, MX 2001-5693 20010606

FDT AU 2000020446 A Based on WO 2000034372; EP 1144494 A1 Based on WO 2000034372; BR 9916040 A Based on WO 2000034372; US 2002137834 A1 Cont of US 6384121; JP 2002531663 W Based on WO 2000034372; US 2003013796 A1 Cont of US 6417262; US 6548587 B1 CIP of US 6417262; AU 758550 B Previous Publ. AU 2000020446, Based on WO 2000034372; US 6552114 B2 Cont of US 6417262; MX 2001005693 A1 Based on WO 2000034372

PRAI **US 1998-111284P 19981207**; US 1999-452511 19991201; US 1999-452827 19991201; US 2002-72759 20020208; US 1999-452826 19991201; US 2002-144427 20020513; **US 1998-111202P 19981207**; US 1999-143352P 19990712; US 1999-354205 19990715; US 2000-210064P 20000607; US 2000-593905 20000614

IC ICM C08K003-34; C08L077-00
ICS C08G069-28; C08J005-00; C08K007-00; C08K009-00

AB WO 200034372 A UPAB: 20031022
NOVELTY - Polyamide **clay nanocomposite** (1) comprises a amorphous matrix polyamide (2) and a layered **clay** material (3), dispersed in (2). (2) comprises a residue of:

(i) a dicarboxylic acid component having one diacid, and

(ii) at least one diamine component.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for the following:

(A) a polyamide **clay** intercalated with (2);

(B) an **exfoliate** comprises several individual material platelets obtained by shearing the intercalate; and

(C) preparation of (1) comprising, increasing the molecular weight of the composite, and hence producing a **nanocomposite** material, by:

(a) **melt** mixing (3) with a matrix polyamide compatible oligomeric **resin** to form an oligomeric **resin clay** composite, and

(b) mixing the composite with (2).

USE - Used in the preparation of film, sheet, preferably wall, fiber, an extruded article, preferably pipe, or a molded article, preferably container or food packaging, especially bottle (claimed).

ADVANTAGE - The article has a gas permeability which is 10% lower than that of an article formed from a **clay** free polyamide or unmodified polyamide (claimed). The amorphous polyamide shows resistance to haze formation, crystallization and other defect formation, when undergoing orientation and/or other film processing steps.

Dwg.0/0

FS CPI
FA AB
MC CPI: A05-F01E3; A08-R06B; A11-A03; A12-P01B; A12-P06; F01-D03A; F01-D03B

L100 ANSWER 5 OF 9 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2000-442148 [38] WPIX
CR 2000-431285 [37]; 2000-451819 [39]; 2001-191284 [19]
DNC C2000-134353
TI **Exfoliated**, high I.V. **polymer** platelet particle **nanocomposite** used for articles with improved gas barrier properties comprising high molecular weight matrix **polymer** and platelet particles.
DC A23 A60 A92 B07 E11 E16 E19 F01 P73 Q32
IN CONNELL, G W; GILMER, J W; MATAYABAS, J C; OWENS, J T; PINER, R L; TURNER,

S R; BAGRODIA, S; BERNARD, L G; LAN, T; PSIHOGIOS, V

PA (EACH) EASTMAN CHEM CO; (CONN-I) CONNELL G W; (GILM-I) GILMER J W; (MATA-I) MATAYABAS J C; (OWEN-I) OWENS J T; (PINE-I) PINER R L; (TURN-I) TURNER S R; (UYSC-N) UNIV SOUTH CAROLINA

CYC 27

PI WO 2000034377 A1 20000615 (200038)* EN 67 .C08K009-04
RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
W: AU BR CA CN IN JP MX
AU 2000021600 A 20000626 (200045)
BR 9916034 A 20010821 (200155) C08K009-04
EP 1144500 A1 20011017 (200169) EN C08K009-04
R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
US 2002165306 A1 20021107 (200275) C08K003-34
JP 2002531666 W 20020924 (200278) 61 C08L101-00
US 2002193494 A1 20021219 (200303) C08K003-34
US 6548587 B1 20030415 (200329) C08K003-34
MX 2001005690 A1 20020501 (200368) C08J003-20
AU 768841 B 20040108 (200412) C08K009-04
US 2004063841 A1 20040401 (200425) C08K003-34

ADT WO 2000034377 A1 WO 1999-US28220 19991130; AU 2000021600 A AU 2000-21600 19991130; BR 9916034 A BR 1999-16034 19991130, WO 1999-US28220 19991130; EP 1144500 A1 EP 1999-965933 19991130, WO 1999-US28220 19991130; US 2002165306 A1 **Provisional US 1998-111202P 19981207**, Cont of US 1999-354205 19990715, US 2002-145833 20020514; JP 2002531666 W WO 1999-US28220 19991130, JP 2000-586818 19991130; US 2002193494 A1 **Provisional US 1998-111202P 19981207**, Cont of US 1999-354205 19990715, US 2002-198916 20020719; US 6548587 B1 **Provisional US 1998-111202P 19981207, Provisional US 1998-111284P 19981207** , Provisional US 1999-143352P 19990712, CIP of US 1999-354205 19990715, CIP of US 1999-452826 19991201, Provisional US 2000-210064P 20000607, US 2000-593905 20000614; MX 2001005690 A1 WO 1999-US28220 19991130, MX 2001-5690 20010606; AU 768841 B AU 2000-21600 19991130; US 2004063841 A1 **Provisional US 1998-111202P 19981207**, Cont of US 1999-354205 19990715, Cont of US 2002-145833 20020514, US 2003-674844 20030930

FDT AU 2000021600 A Based on WO 2000034377; BR 9916034 A Based on WO 2000034377; EP 1144500 A1 Based on WO 2000034377; JP 2002531666 W Based on WO 2000034377; US 6548587 B1 CIP of US 6417262; MX 2001005690 A1 Based on WO 2000034377; AU 768841 B Previous Publ. AU 2000021600, Based on WO 2000034377

PRAI US 1999-354205 19990715; **US 1998-111202P 19981207**; US 2002-145833 20020514; US 2002-198916 20020719; **US 1998-111284P 19981207**; US 1999-143352P 19990712; US 1999-452826 19991201; US 2000-210064P 20000607; US 2000-593905 20000614; US 2003-674844 20030930

IC ICM C08J003-20; C08K003-34; C08K009-04; C08L101-00
ICS B32B027-20; B32B027-34; B32B027-36; C08J005-00; C08K009-00; C08L067-02; C08L077-00; D01F001-10; D01F006-90; D01F006-92

ICA B65D001-09

AB WO 200034377 A UPAB: 20040418
NOVELTY - An **exfoliated,** high inherent viscosity (I.V.) **polymer**-platelet particle **nanocomposite** comprises a high molecular weight matrix **polymer** and platelet particles **exfoliated** in the matrix **polymer**. The particles are dispersed in a matrix **polymer**-compatible oligomeric **resin** and the platelet particle-oligomer **resin** dispersion is incorporated into the matrix **polymer**.
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:
(1) an article prepared from the **nanocomposite**;

(2) the preparation of an **exfoliated**, high I.V. **polymer**-platelet particle **nanocomposite** comprising:
(a) **melt** mixing platelet particles with a matrix **polymer**-compatible oligomeric **resin** to form an oligomeric **resin**-platelet particle composite; and
(b) mixing the oligomeric **resin**-platelet particle composite with a high molecular weight matrix **polymer**, thereby increasing the molecular weight of the oligomeric **resin**-platelet particle composite and producing the **nanocomposite** material;
(3) another process for preparing an **exfoliated**, high I.V. **polymer**-platelet particle **nanocomposite** comprising **melt** mixing platelet particles, a matrix **polymer**-compatible oligomeric **resin**, and a high molecular weight matrix **polymer**, thereby increasing the molecular weight of the mixture and producing the **nanocomposite** material;
(4) the preparation of an **exfoliated**, high I.V. **polymer**- platelet particle **nanocomposite** comprising:
(a) **melt** mixing platelet particles with an oligomeric **resin** to form an oligomeric **resin**-platelet particle composite, and
(b) increasing the molecular weight of the oligomeric **resin**-platelet particle composite by reactive chain extension of the oligomeric **resin** to produce the **nanocomposite** material; and
(5) a further process for preparing an **exfoliated**, high I.V. **polymer**-platelet particle **nanocomposite** comprising:
(a) contacting a **clay** with an organic cation to form an organoclay comprising platelet particles,
(b) **melt** mixing the organoclay with a matrix **polymer**-compatible oligomeric **resin** to form an oligomeric **resin**-platelet particle composite, and
(c) mixing the oligomeric **resin**-platelet particle composite with a high molecular weight matrix **polymer**, thereby increasing the molecular weight of the oligomeric **resin**-platelet particle composite and producing an **exfoliated**, high I.V. **polymer** **nanocomposite** material.
USE - The **nanocomposite** material may be used to form articles in the form of film, sheet, fibre, extruded article, a molded article or a molded containers. It is especially useful as a bottle.
ADVANTAGE - The **nanocomposite** has improved gas barrier properties.
Dwg.0/6

FS CPI GMPI
FA AB; DCN
MC CPI: A05-E03; A05-E04B; A05-F01B1; A05-F01B2; A07-A03A; A07-A03C; A08-R06B; A11-A03; B04-C03D; B04-D02; B05-B01B; B12-M04; E05-A; E05-B; E05-E03; E31-P02D; F01-D03; F01-D04A

L100 ANSWER 6 OF 9 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2000-442123 [38] WPIX
CR 2000-442149 [38]; 2002-625780 [67]
DNC C2000-134328
TI **Polymer clay nanocomposite** having improved gas barrier and used for films, sheets and pipes and as bottles comprising **melt**-processable matrix **polymer** having a **clay**-organic cation intercalate incorporated therein.
DC A60 B07 E19
IN BARBEE, R B; GILMER, J W; LAN, T; MATAYABAS, J C
PA (EACH) EASTMAN CHEM CO; (UYSC-N) UNIV SOUTH CAROLINA

CYC 26
PI WO 2000034180 A1 20000615 (200038)* EN 46 C01B033-44
RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
W: AU BR CA CN JP MX
AU 2000020400 A 20000626 (200045)
EP 1137594 A1 20011004 (200158) EN C01B033-44
R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
JP 2002531640 W 20020924 (200278) 44 C08L101-00
US 6486253 B1 20021126 (200324) 13 C08K003-34
AU 758250 B 20030320 (200329) C01B033-44
MX 2001005692 A1 20020501 (200368) C01B033-44
ADT WO 2000034180 A1 WO 1999-US28698 19991207; AU 2000020400 A AU 2000-20400 19991207; EP 1137594 A1 EP 1999-964087 19991207, WO 1999-US28698 19991207; JP 2002531640 W WO 1999-US28698 19991207, JP 2000-586634 19991207; US 6486253 B1 **Provisional US 1998-111199P 19981207**, US 1999-451549 19991201; AU 758250 B AU 2000-20400 19991207; MX 2001005692 A1 WO 1999-US28698 19991207, MX 2001-5692 20010606
FDT AU 2000020400 A Based on WO 2000034180; EP 1137594 A1 Based on WO 2000034180; JP 2002531640 W Based on WO 2000034180; AU 758250 B Previous Publ. AU 2000020400, Based on WO 2000034180; MX 2001005692 A1 Based on WO 2000034180
PRAI WO 1999-US28336 19991130; **US 1998-111199P 19981207**; US 1999-451549 19991201
IC ICM C01B033-44; C08K003-34; C08L101-00
ICS C08K009-04
AB WO 200034180 A UPAB: 20031022
NOVELTY - A **polymer-clay nanocomposite** having an improved gas barrier comprises: (i) a **melt**-processable matrix **polymer**, incorporated therein (ii) a **clay** -organic cation intercalate comprising a layered **clay** material intercalated with a mixture of at least two organic cations.
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also provided for: (a) an article prepared from the above **nanocomposite**; (b) preparation of the **polymer-clay nanocomposite** having improved gas barrier; (c) an intercalate comprising a layered **clay** material intercalated with a mixture of at least two organic cations and a **melt** processable **polymer**; (d) an **exfoliate** formed by shearing the above intercalate to form several delaminated **clay** layers and **clay** tactoids; and (e) preparation of a **polymer-clay** intercalate capable of admixture with a matrix **polymer** to form a **nanocomposite** having improved gas barrier.
USE - The **nanocomposite** is used to form articles in the form of film, sheet, pipe, an extruded article, a moulded article or a moulded container. It is preferably in the form of a bottle. Containers made are suitable for protecting consumable products, such as food, soft drinks and medicines. They can be used as multilayer bottles and containers, including beer bottles.
ADVANTAGE - Articles prepared have improved properties and clarity, they have improved gas barrier properties and are suitable for widespread applications.
Dwg.0/0
FS CPI
FA AB; DCN
MC CPI: A08-M10; A09-A09; B04-C03B; B04-C03D; B05-C; B11-C06; B11-C09; E05-B03; E05-E03; E05-G02; E05-G03A; E10-A22; E31-P02D; E31-P05

L100 ANSWER 7 OF 9 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2000-423390 [36] WPIX

CR 2000-423389 [36]; 2002-680657 [73]
DNC C2000-128209
TI **Polymer clay nanocomposites** used to form articles having improved gas barrier properties comprising **melt**-processible matrix **polymer** and a mixture of at least two swellable layered **clay** materials.
DC A18 A28 A60 A92 B07 E19
IN BARBEE, R B; GILMER, J W; LAN, T; MATAYABAS, J C; PSIHOGIOS, V
PA (EACH) EASTMAN CHEM CO
CYC 25
PI WO 2000034376 A1 20000615 (200036)* EN 47 C08K007-00
RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
W: AU BR CA CN JP MX
AU 2000021681 A 20000626 (200045)
EP 1137706 A1 20011004 (200158) EN C08K007-00
R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
BR 9916044 A 20011002 (200167) C08K007-00
JP 2003525964 W 20030902 (200358) 46 C08L101-00
MX 2001005694 A1 20020501 (200368) C08K003-34
ADT WO 2000034376 A1 WO 1999-US28988 19991207; AU 2000021681 A AU 2000-21681 19991207; EP 1137706 A1 EP 1999-966036 19991207, WO 1999-US28988 19991207; BR 9916044 A BR 1999-16044 19991207, WO 1999-US28988 19991207; JP 2003525964 W WO 1999-US28988 19991207, JP 2000-586817 19991207; MX 2001005694 A1 WO 1999-US28988 19991207, MX 2001-5694 20010606
FDT AU 2000021681 A Based on WO 2000034376; EP 1137706 A1 Based on WO 2000034376; BR 9916044 A Based on WO 2000034376; JP 2003525964 W Based on WO 2000034376; MX 2001005694 A1 Based on WO 2000034376
PRAI WO 1999-US28340 19991130; **US 1998-111074P 19981207**
IC ICM C08K003-34; C08K007-00; C08L101-00
ICS B32B027-20; B65D001-09; C08J005-00; C08K009-04
AB WO 200034376 A UPAB: 20031022
NOVELTY - A **polymer-clay nanocomposite** comprises:
(i) a **melt**-processible matrix **polymer**; and
incorporated therein
(ii) a mixture of at least two swellable layered **clay** materials.
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:
(1) an article prepared from the above **nanocomposite**;
(2) preparation of the **polymer-clay nanocomposite** by
(i) preparing a mixture of at least two swellable layered **clay** materials, and
(ii) incorporating the mixture with a matrix **polymer** by **melt** processing the matrix **polymer** with the mixture to form a **nanocomposite**;
(3) an intercalate comprising a mixture of at least two swellable layered **clay** materials intercalated with a **melt**-processible **polymer**;
(4) an **exfoliate** manufactured by shearing the intercalate to form several delaminated **clay** layers and **clay** tactoids of the swellable layered **clay** materials; and
(5) preparation of an intercalate comprising
(i) **clay** materials, and
(ii) incorporating the mixture with a matrix **polymer** to form an intercalate wherein the matrix **polymer** is intercalated between adjacent layers of the swellable layered **clay** materials.
USE - The **nanocomposite** is used to form articles in the

form of film, sheet, preform, profile, extruded article, moulded article or moulded container. It may be in the form of a bottle. They form articles and containers and are ideally suitable for protecting consumable products such as food, drink and medicines. They can be used in multilayer bottles and containers, including beer bottles.

ADVANTAGE - The **nanocomposites** have improved gas barrier properties and have improved clarity.

Dwg.0/0

FS CPI
FA AB; DCN
MC CPI: A08-R06B; A09-A09; A12-P01; B04-C03; B05-A01B; B05-A02; B05-A03A; B05-A03B; B05-B01E; B05-B01F; B05-B01G; B05-B02C; B10-A22; B10-B04; B11-C06; E05-G02; E05-G03A; E10-A22; E31-P02D; E31-P05

L100 ANSWER 8 OF 9 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2000-375924 [32] WPIX
DNC C2000-113551
TI Preparation of **nanocomposites** useful in mechanical, optical, magnetic and dielectric applications comprises combining a cyclic oligomer and a layered silicate.
DC A28 A60
IN HAGHIGHAT, R; HERBERT, C; KOENE, B E; SINGH, A; VAIA, R
PA (TRIT-N) TRITON SYSTEMS INC
CYC 22
PI WO 2000024818 A1 20000504 (200032)* EN 43 C08K003-34
RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
W: AU CA JP US
AU 2000012291 A 20000515 (200039) C08K003-34
ADT WO 2000024818 A1 WO 1999-US24957 19991022; AU 2000012291 A AU 2000-12291 19991022
FDT AU 2000012291 A Based on WO 2000024818
PRAI **US 1998-105433P 19981023**
IC ICM C08K003-34
ICS C08K003-36
AB WO 200024818 A UPAB: 20000706

NOVELTY - **Nanocomposites** are prepared by combining at least one type of cyclic oligomer with at least one type of layered silicate at about 200 deg. C or less.

DETAILED DESCRIPTION - Preparation of **nanocomposites** (1) comprises: (a) cyclizing at least one linear oligomer with a ring member, to form at least one macrocyclic oligomer (2); (b) mixing (2) with at least one layered silicate (3); (c) opening the ring member to make a linear **polymer** intermediate; (d) **polymerizing** the intermediate; and (e) producing (1) from the mixture.

An INDEPENDENT CLAIM is also included for an alternate method of preparation of (1) which comprises: (A) making at least one polycyclic oligomer (4) from at least one linear oligomer; (B) mixing (4) with at least one low **melt** viscosity **polymer** (5) and at least one inorganic (3); (C) **melting** (4) and (5) in the mixture; (D) cross-linking (4) and (5); and step (e).

USE - In making new variety of new materials including those used in mechanical, optical, magnetic and dielectric applications. It also used in enhance processing of the **nanocomposite** as well as provides it with exceptional performance characteristics.

ADVANTAGE - The method reduces **polymer** void, enhances **melt**-processing and improves flow characteristics in absence of **solvent**. It also provides good dispersal between the **polymer** and layered silicate material especially at low manufacturing temperature at about 200 deg. C or less. At this a low

temperature, integrity of some of all the **nanocompostes** is maintained. The methods are highly flexible and can be readily tailored to produce the **nanocomposites** which has a variety of high performance characteristics including good hardness, strong crosslinking and ablative properties. Use of toxic or potentially toxic **solvents** and/or high pressure manipulations are avoided.
Dwg.0/9

FS CPI
FA AB
MC CPI: A10-D; A10-E14; A12-W12

L100 ANSWER 9 OF 9 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2000-108535 [10] WPIX
DNC C2000-032813
TI Stabilization of retinoid compositions useful for combatting skin and hair aging, irritation, inflammation, immunosuppression or acne.
DC A96 B03 B05 D21
IN BOUSSOUIRA, B; PHILIPPE, M
PA (OREA) L'OREAL SA
CYC 30

PI	FR 2779060	A1	19991203 (200010)*		19	A61K031-07
	EP 972511	A1	20000119 (200010)	FR		A61K007-48
	R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI					
	JP 2000007560	A	20000111 (200013)		10	A61K031-07
	CA 2272840	A1	19991126 (200018)	FR		A61K007-42
	BR 9901955	A	20000606 (200036)			A61K007-48
	JP 3095741	B2	20001010 (200052)		10	A61K007-48
	KR 99088439	A	19991227 (200059)			C07D235-00
	US 6358514	B1	20020319 (200224)			A61K006-00
	KR 332260	B	20020412 (200268)			C07D235-00
	EP 972511	B1	20030409 (200325)	FR		A61K007-48
	R: DE ES FR GB IT					
	DE 69906633	E	20030515 (200340)			A61K007-48
	ES 2196737	T3	20031216 (200413)			A61K007-48

ADT FR 2779060 A1 **FR 1998-6603 19980526**; EP 972511 A1 EP 1999-401133 19990507; JP 2000007560 A JP 1999-144125 19990524; CA 2272840 A1 CA 1999-2272840 19990525; BR 9901955 A BR 1999-1955 19990513; JP 3095741 B2 JP 1999-144125 19990524; KR 99088439 A KR 1999-18224 19990520; US 6358514 B1 US 1999-317859 19990525; KR 332260 B KR 1999-18224 19990520; EP 972511 B1 EP 1999-401133 19990507; DE 69906633 E DE 1999-606633 19990507, EP 1999-401133 19990507; ES 2196737 T3 EP 1999-401133 19990507
FDT JP 3095741 B2 Previous Publ. JP 2000007560; KR 332260 B Previous Publ. KR 99088439; DE 69906633 E Based on EP 972511; ES 2196737 T3 Based on EP 972511
PRAI **FR 1998-6603 19980526**
IC ICM A61K006-00; A61K007-42; A61K007-48; A61K031-07; C07D235-00
ICS A61K007-00; A61K007-021; A61K007-025; A61K007-06; A61K007-135; A61K007-40; A61K009-127; A61K009-14; A61K031-4164; A61K031-4172; A61K038-00; A61K047-18; A61P017-00; A61P017-10; A61P017-16
AB FR 2779060 A UPAB: 20000228
NOVELTY - Histidine derivatives (I) are used to improve the stability of compositions containing retinoids selected from vitamin A, retinal and bioconvertible vitamin A precursors.
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following: (1) an association comprising (a) one or more retinoids selected from vitamin A, retinal and bioconvertible vitamin A precursors and (b) one or more histidine derivatives of formula (I) or their acid-addition salts:

n = 0-5;
a = 1-16;
R = an amino acid side chain;
X = CO, O-CO, NH-CO, SO2, NH-CO-CO or O-CO-CO;
R' = 6-22C (un)saturated alkyl optionally substituted by OH, NH2, acetamido or mono- or di(lower alkyl)amino;
Q = H or a cation;
(2) a cosmetic and/or dermatological composition comprising the association and a carrier.

ACTIVITY - Dermatological; antiinflammatory; antiseborrheic; antipruritic.

MECHANISM OF ACTION - None given.

USE - The compositions are useful for combatting aging of the skin and hair, especially aging induced by photoperoxidation of squalene and/or collagen, or for combatting or preventing irritation, inflammation, immunosuppression and/or acne.

ADVANTAGE - (I) are more effective than carnosine in stabilizing retinol. Solutions of all-trans retinol (0.3%) in **water/ethanol** (40:60) having a pH of 8.2 and containing (i) 0.1% carnosine or (ii) 0.1% N-(12-amino-1-oxododecyl)-L-histidine was stored in amber bottles (55 volume% air, 45 volume% solution) at 45 deg. C for 7 days. The residual retinol level was (i) 17%, (ii) 78%.

Dwg.0/0

FS CPI
FA AB; GI; DCN
MC CPI: A10-E01; A12-V04A; A12-V04C; B03-A; B07-D09; B14-N17D; B14-R02; D08-B03

=>